SAMSUNG

SAMSUNG FACSIMILE

Msys 730

SERVICE *Manual*

SAMSUNG FACSIMILE

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ELECTRONICS

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1. Precautions

Please read the following carefully to prevent any accidents and not to damage the unit during service.

1-1 Safety Precautions

1. Safety Precautions

There are some electric or machinery parts with safety related property. If the parts replaced are different from the original, the safety may not function. Even if the part could allow higher voltage than that of the part used, do not replace it and use a regular product clarified in specifications.

2. Be careful not to leave a switch, a cover or a safety device out when reinstalling or assembling the product after repair.

3. Replacing Precautions

Do not change or add parts as you like. You cannot benefit from such a remodeled product at your will during the term of guarantee.

4. You must replace overheated or damaged parts or cords with regular products. Please solve the problem causing any damage or overheating and troubles beforehand.

Especially mind the safety on the part with this mark.

You must use regular parts described in specifications for the parts inflammable and where the current can be flown. Otherwise any hazard such as an electric shock or a fire could occur.

LASER STATEMENT (LASERTURVALLISUUS)

WARNING : NEVER OPERATE AND SERVICE THE PRINTER WITH THE PROTECTIVE COVER REMOVED FROM LASER/SCANNER ASSEMBLY. THE REFLECTIVE BEAM, ALTHOUGH INVISIBLE, CAN DAMAGE YOUR EYES.

Class 1 laser product

Luokan 1 laserlaite
Klass 1 laser apparat

Allonpituus 770-795nm
Teho 0.3mW±0.03mW

CAUTION	INVISIBLE LASER RADIATION WHEN THIS COVER OPEN. DO NOT OPEN THIS COVER.
VORSICHT	UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEOFFNET. NIGHT DEM STRAHL AUSSETZEN.
ATTENTION	REYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGERUSE AU FAISCEAU.
ATTENZIONE	RADIAZIONE LASER INVISIBLE IN CASO DI APERTURA. EVITARE L'ESPOSIZONE LA FASCIO.
PRECAUCION	REDIACION LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.

CAUTION : Avoid exposure to invisible laser radiation when the development unit is not installed.

1-2 Precautions on Disassembly and Reassembly

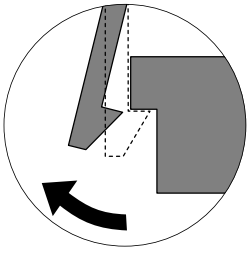
Very careful precautions should be taken when replacing parts. Before replacing, please check cables because you cannot put the cables that you removed for replacing parts into the proper place if you would not make sure of where they were connected and in which condition.

Please do the following before disassembling for a repair or replacement of parts.

1. Pull out paper cassette, printer cartridge installed. Especially careful not to be scratched by the surface of developer or not to expose them to light.
2. Turn the power switch off.
3. Take out the power plug, printer cable from the printer.
4. Use only the same type of part as original when replacing parts.
5. Do not force to open or fasten plastic material components.
6. Be careful that small parts such as screws should not get in the printer.
7. When disassembling, assembling, also observe small components are located in place.
8. If you uncover and turn the machine over to replace some parts, toner or paper particles may contaminate the LSU window. Protect the LSU window with clean paper.

Releasing Plastic Latches

Many of parts are held in place with plastic latches. The latches break easily : release them carefully. To remove such parts, press the hook end of the latch away from the part to which it is latched.



1-3 ESD Precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices”, or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components.
The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

CAUTION:
Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

1. Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.

3. Use only a grounded tip soldering iron to solder or desolder ESDs.

4. Use only an “anti-static” solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.

5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.

6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.

7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.

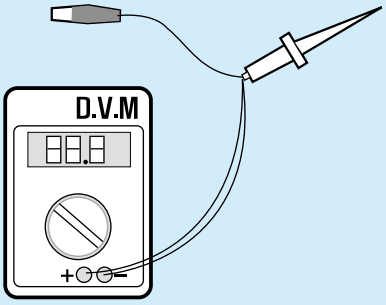
9. Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one’s foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

1-4 Tools for Troubleshooting

The following tools are recommended for safe and smooth troubleshooting described in this service manual.

DVM(Digital Volt Meter)

Standard : Indicates more than 3 digits.

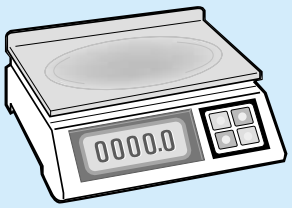


Pinset

Standard : For general home use, small type.

Electronic Scale

Standard : Equipment to check the weight of consumables(toner cartridge) . (The gram unit can be measured.)

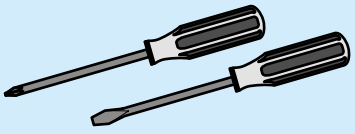


Cotton Swab

Standard : For general home use, for medical service.

Driver

Standard: "-" type, "+" type (M3 long, M3 short, M2 long, M2 short)



Cleaning Equipments a IPA(Isopropyl Alcohol) dry cloth or a soft stuff neutral detergent.

Note Mind your hands not to be touched when you disassemble and reassemble PBA ASS'Y, such as the main board, SMPS, HVPS.

2. Specification

2-1 Facsimile

Machine type		Desk Top
Applicable line		Public Switched Telephone Network (PSTN) or behind PABX
Compatibility		CCITT Group 3
Data coding		MH/MR/MMR
Modem speed		33600/31200/28800/26400/24000/21600/19200/16800/ 14400/12000/9600/7200/4800/2400 bps
Transmission speed		Approx. 6 sec.(14.4K,ECM,4% Letter)
Effective scanning width		8.2 inches (208 mm)
Effective printing width		8.2 inches (208 mm : LTR)
Scanning method		Sheet-fed scanning using a Contact Image Sensor (CIS)
Memory		5 MByte
Halftone		256 levels
Printing speed		8 PPM (Letter size)
Automatic document feeder		50 pages (75g/m^2, 20lb : 0.09 ~ 0.10 mm thickness)
Documents size	Width	5.8 to 8.5 inches (148 to 216 mm)
	Length	Single page : 5 to 59 inches (128 to 1,500 mm) Multi pages : 8.3 to 11.7 inches (279 to 297 mm)
	Weight (thickness)	Single page : 12.5 to 32 lb (50 to 100g/m^2) (0.07 to 0.15 mm) 20 pages: 12.5 to 28 lb (50 to 90g/m^2) (0.07 to 0.13 mm), Uncoated paper 50 pages : 20 lb (75g/m^2) (max 0.1 mm), Uncoated paper
One-touch dial :		Registration for 38 numbers
Speed dialing		Registration for 150 numbers
LCD :		16 characters x 2 lines

2-2 SCANNER

Scanning Method :		Sheet-fed scanning by CIS and feeding of the document by a stepping motor
Resolution	Horizontal	11.8 lines/mm (300 dpi)
	Vertical	STANDARD : 3.85 lines/mm (98 Lpi)
		FINE : 7.7 lines/mm (196 Lpi)
		SUPER FINE : 11.8 lines /mm (300 Lpi)
Gray Scale :		256 shades
Scanning period :		STANDARD : 2.5 ms/line
		FINE : 2.5 ms/line
		SUPER FINE : 2.5 ms/line

2-3 Printer

Print Speed		8 PPM (A4 Size, 5% Charcter Pattern) : At Copy Mode
Resolution		600 X 600 DPI
Source of Light		Laser Diode(LSU)
Print Method		Non-impact Electrophotography, Laser Beam
Feed Method		Multi-Purpose Feeder and Manual
Feed Reference		Side Reference Loading
Paper Size	Cassette Type	Normal Paper : A4,Letter,Legal,B5,Executive
		A5 (for manual)
	Length	148 ~ 356mm
	Width	98 ~ 216mm
Paper Weight	For MPF	60 ~ 90g/m^2
	For Manual	60 ~120g/m^2
Paper Capacity	MPF	250 Sheets (based on 75g/m^2)
	Manual Slot	1 Sheet
Paper Stacker Capacity		Face up : 150 Sheets (75g/m^2,20 lb)
Warming up Time		About 20 sec
First Printing Time	Stand-By	About 25 sec
	Power Save Mode	About 40 sec
Power Rating		AC 110V ~127V ± 15% 50/60Hz ± 3Hz,
		AC 220V ~ 240V ± 15% 50/60Hz ± 3Hz
Power Consumption	Max.	210Wh
	Stand-by	50Wh
	Avg.	13Wh
Power Saving Consumption		Sleeping Mode
Certification & Compliance		FCC, cUL, CE, CB, IC CS-03
Acoustic Noise	Standby	Less than 36dB
	Operating	Less than 50dB
Toner Cartridge		One-Cartridge type
Expected Life Span		100,000 Sheets
Operating Environment		Temperature : 10 ~ 30°C , Humidity : 30 ~ 80%RH
Storage Environment		Temperature : 0 ~ 35°C , Humidity : 20 ~ 95%RH
Weight	SET	Net : 9 kg Gross : 14.3 kg
	SCF	Net : 4.8 kg Gross : 6.0 kg
External Dimension		386(W) X 405(D) x 270(H)mm
Developer	Life Span	5% Pattern,Min. 6,000 Sheets
	Developing	Non-magnetic Contact Developing
	Charging	Conductive Roller Charging
	Density Adjustment	Dark, Medium
	Toner Supply Method	Exchanging Toner Cartridge
	New Developer Checkable	YES
	Transfer System	Pre-transfer By LED & Conductive Roller Transfer
	Fusing System	Temperature & Pressure
	OZONE Emission	Max. 0.1 PPM(8 Hours)

2-4 Quality

Conditions

	Paper	Normal Paper , 75g/m^2
	Environment	Temperature : 20 ~ 25°C
		Humidity : 40 ~ 60%
Print Quality	Image Density	Min. 1.3
		Min. 1.0(Temperature : 10 ~ 15°C) ,Samsung Paper
	Background	Max. 0.2
	Uniformity	Max. 0.2(Including Continuous Print)
	Fusing	Min. 75% (All Black)
	Start Position	Top : 4.23mm ± 2, Side : 4mm ± 2 From Left
	Skew	Top : Max. ± 1.5mm/200mm
		Side : Max. ± 2.0mm/250mm
	Orthogonality	± 1.0mm
	Horizontal Scan	± 0.6mm/200mm
		(Bowed Line Skew : Pattern 1)
	Special Paper Exception	Image Density : Min 1.0 (Envelope)
		Fusing : Min. 70% (All Black)
		(Envelope/OHP/Postcard)
	Paper Jam	Less than 1/1,000(75g/m^2 Paper)
	Paper Curl	First : Less than 16mm (10 Sheets, 75g/m^2 Paper)
		After Cooling : Less than 16mm (10 Sheets, 75g/m^2 Paper)
Reliability	Insulation Resistance	Less than 10 MΩ (at DC 500V)
	Dielectric Strength	AC 1000V (DC 1420V), 10mA
	Ground Continuous	Less than 0.1Ω
	Voltage DIP	Rated Voltage ± 15%
	AC Impulse Noise	AC 1000V 10, 100, 200, 400, 1000ns Rated Power
	Leakage Current	Less than 3.5mA
	Surge	6 KV, 500A
	OZONE Emission	Less than 0.1 ppm (8 Hours)
	Top Cover Open	Isolating the input power of the LSU,
		High Voltage Part, and Fuser
	Overcurrent Protect	Fuse inside the Engine Controller
Fusing System	Trouble Sensing	.The temperature doesn't rise to the specific
		temperature in the specific time.
		.The temperature is too high.
	Overheat Sensing	240 ~ 250°C (The thermostat cuts off the Fuser from the
		power.)
		Thermistor Open Sensing : Without the initial temperature
		change of the Fuser

2-5 SMPS (Switching Mode Power Supply)

Input (AC)	AC Input Voltage	American
	Minimum	90V
	Typical	120V
	Maximum	135V
	Max. AC Input Currents	3Amps
	Max. Inrush Current)	40 Ap-p (at 25°C)
Output (DC)	Line Regulation	24V ± 10%
		12V ± 5%
	Road Regulation	-12V ± 5%
		5V ± 5%
	Ripple Noise	24V : Peak 500mVp-p
		12V : Peak 500mVp-p
		-12V : Peak 500mVp-p
		5V : Peak 300mVp-p
	Over Current Protect	24V : 2.7A ± 10% (by Circuit)
		5V : 3A ± 10% (by Circuit)
	Over Voltage Protect	24V : 33V
		5V : 5.6V

3. Disassembly and Reassembly

3-1 General Precautions on Disassembly

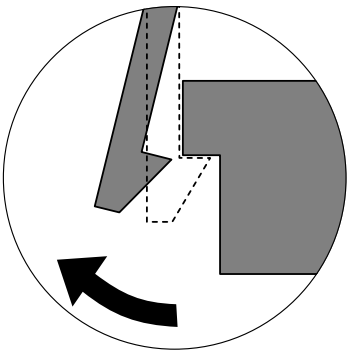
When you disassemble and reassemble components, you must use extreme caution. The close proximity of cables to moving parts makes proper routing a must.
If components are removed, any cables disturbed by the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note the cable routing that will be affected.

Whenever servicing the machine, you must perform as follows:

1. Check to verify that documents are not stored in memory.
2. Be sure to remove the toner cartridge before you disassemble parts.
3. Unplug the power cord.
4. Use a flat and clean surface.
5. Replace only with authorized components.
6. Do not force plastic-material components.
7. Make sure all components are in their proper position.

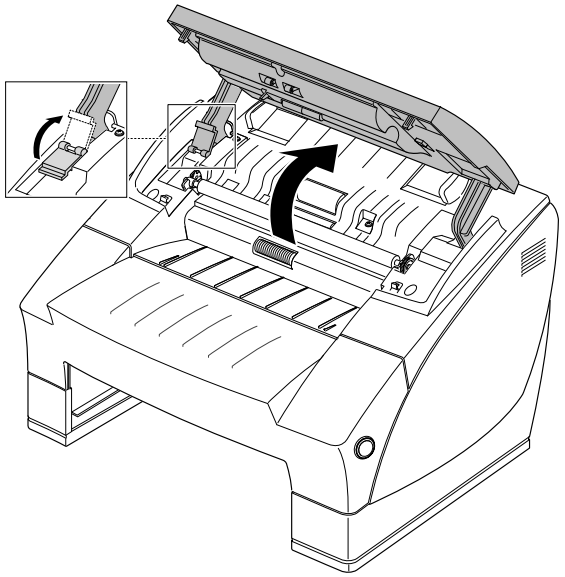
3-2 Releasing Plastic Latches

Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.
To remove such parts, press the hook end of the latch away from the part to which it is latched.

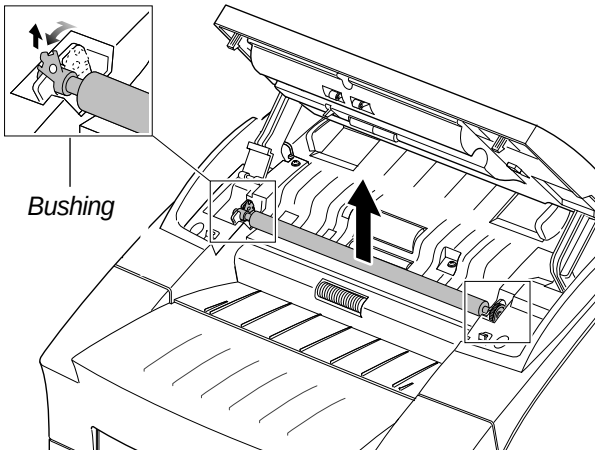


3-3 White Roller

1. Open the OPE panel, then set the support-OPE to the OPE panel.



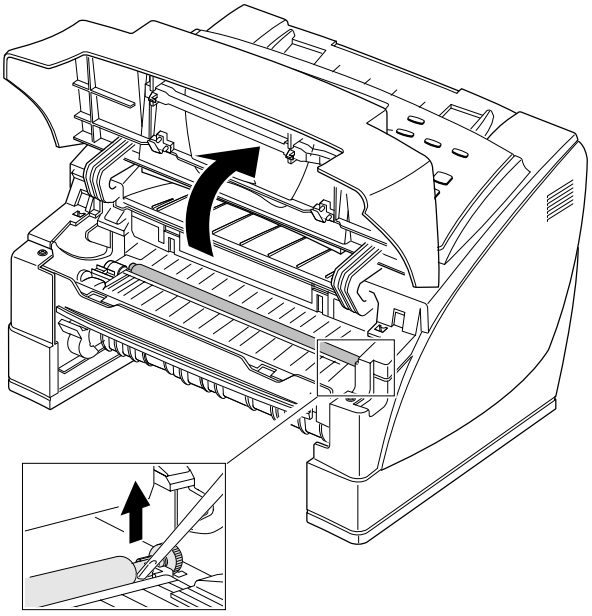
2. Push the bushing on the both ends of the roller slightly inward, then rotate it until it reaches the slot. Then lift the roller out.

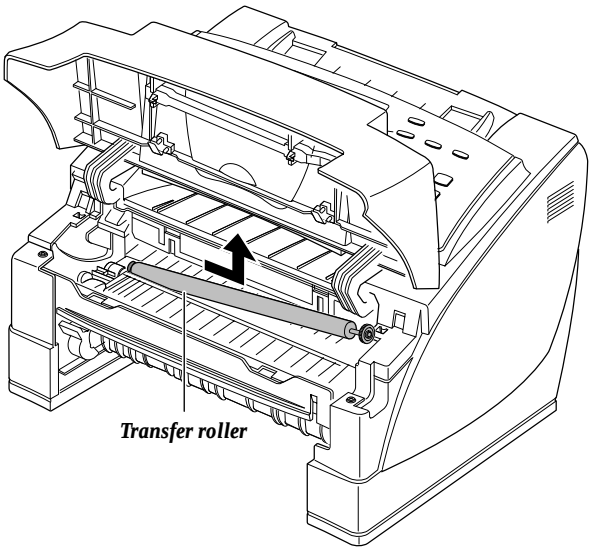


Note: Check the roller for any dirt. If dirty, wipe it off with soft cloth dampened with water. If the roller is heavily worn, replace it with a new one.

3-4 Transfer Roller

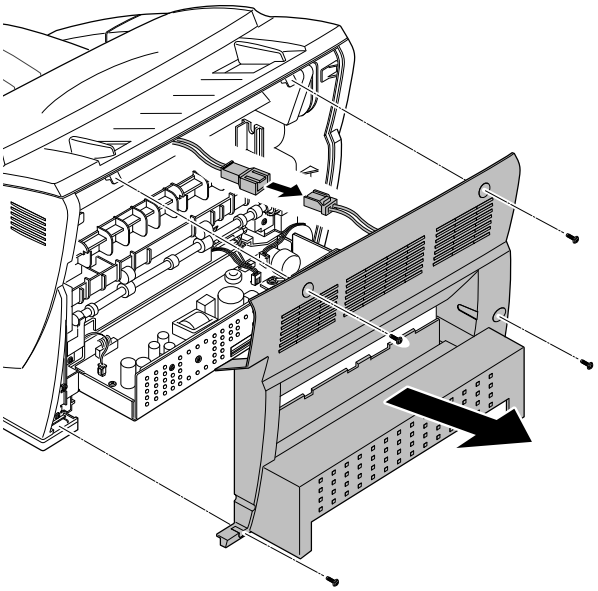
1. Open the front cover, and release one end of the roller using a proper tool as shown in the square.
2. Pull the other end of the roller slightly inward, then lift it up.



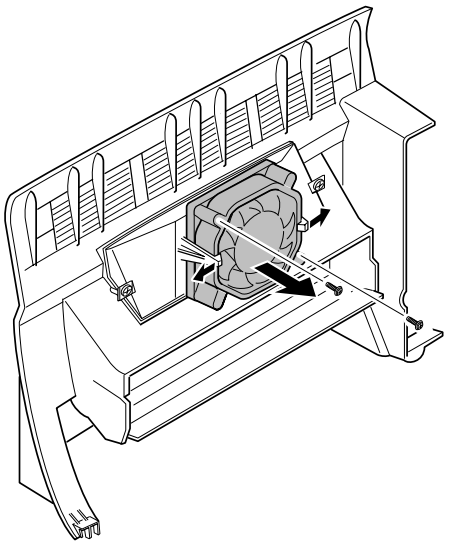


3-5 Rear Cover

1. Remove four screws, unplug one harness, then remove the rear cover.



2. If you want to remove the dummy fan from the rear cover, remove two screws and release two latches, then take it out.

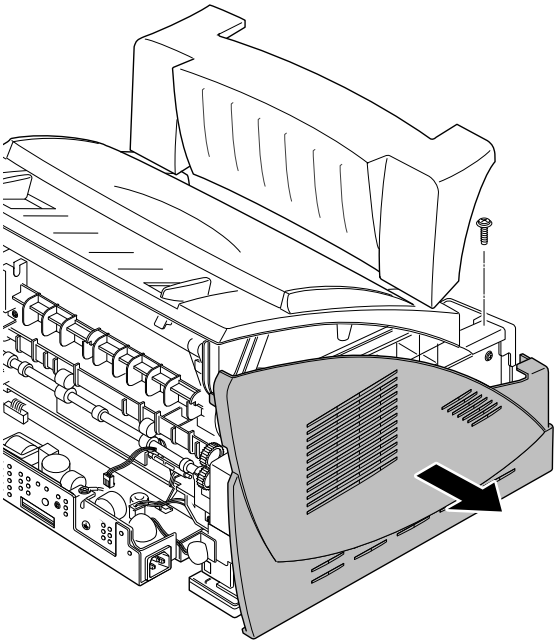


3-6 Left Side Cover

1. Before you remove the cover, you should remove:

   – Rear cover (see page above)

2. Open the front cover, remove one screw, then remove the left side cover.

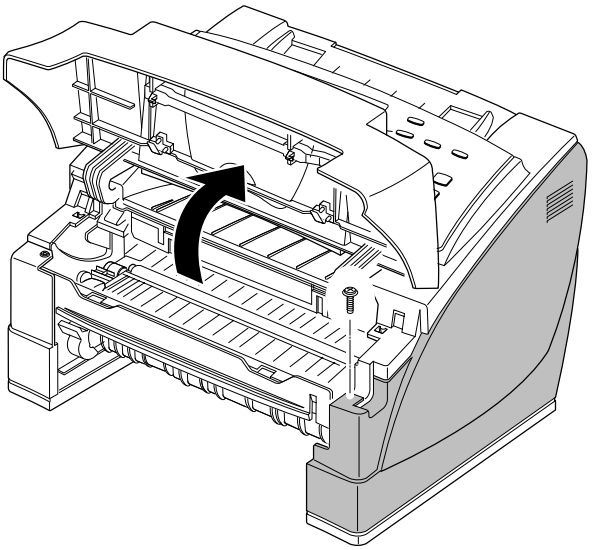


3-7 Right Side Cover

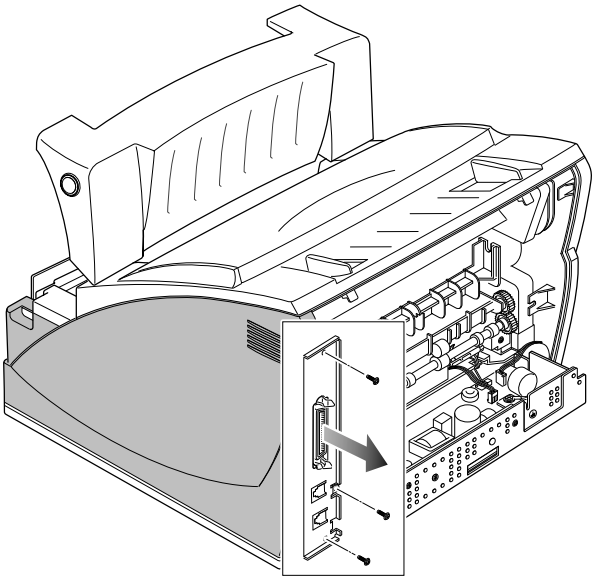
1. Before you remove the cover, you should remove:

   – Rear cover (see page 3-3)

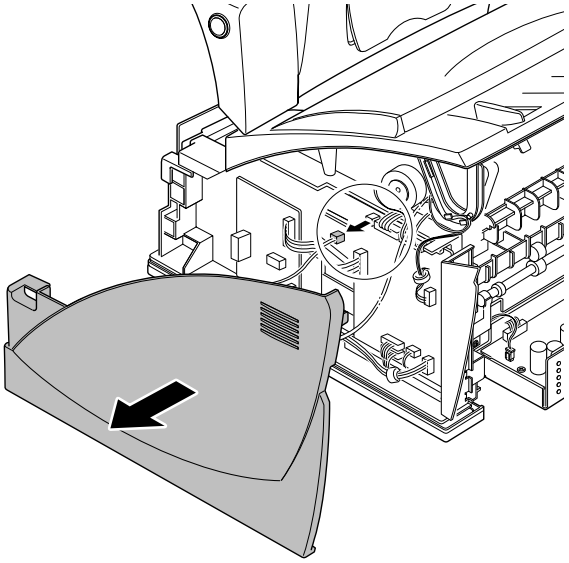
2. Open the front cover, and remove one screw.



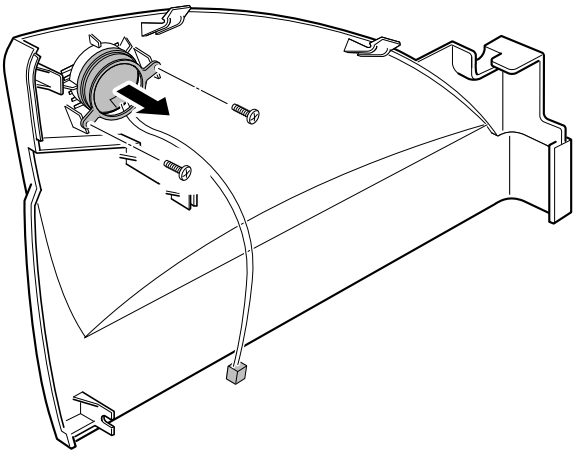
3. Remove three screws, then pull the plate slightly toward you to release the side cover.



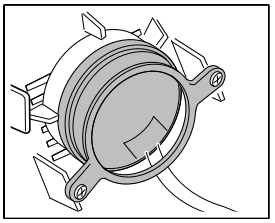
4. Unplug the speaker harness from the main board, then remove the right side cover.



5. If you remove the fan from the side cover, remove two screws, then take it out.



When you reassemble the fan, make sure that the fan is placed correctly.

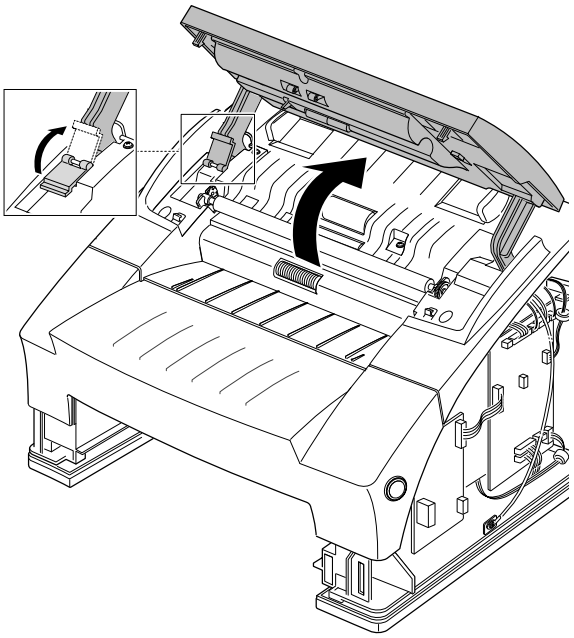


3-8 OPE Assembly

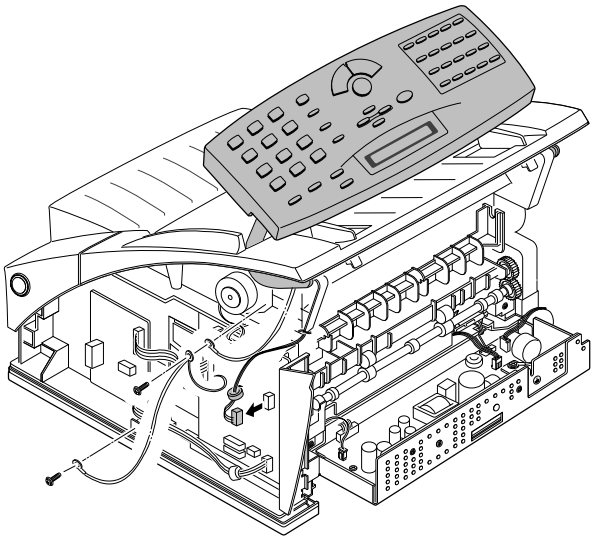
1. Before you remove the cover, you should remove:

   – Rear cover (see page 3-3)
   – Left/Right side covers (see page 3-3, 3-4)

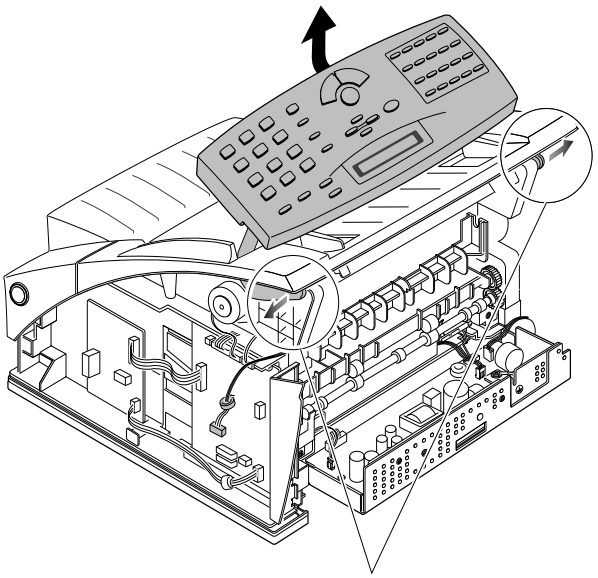
2. Open the OPE panel, then set the support-OPE to the OPE panel.
3. From the right side of the main body, remove two



ground screws and unplug one OPE harness. .



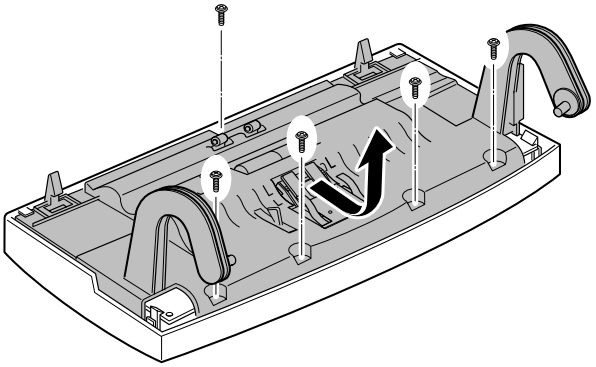
4. To unlatch the OPE ass'y, spread the both ends of the OPE ass'y shown in circles in the figure below, then remove the OPE ass'y.



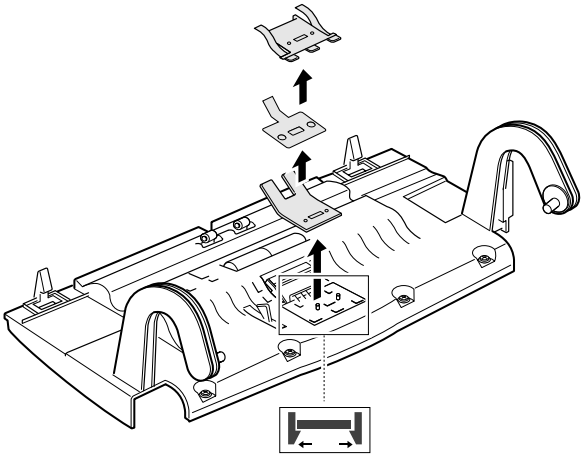
Spread the both ends of the OPE ass'y.

ADF Rubber on the OPE Ass'y

1. Remove five screws, then remove the scan upper frame.

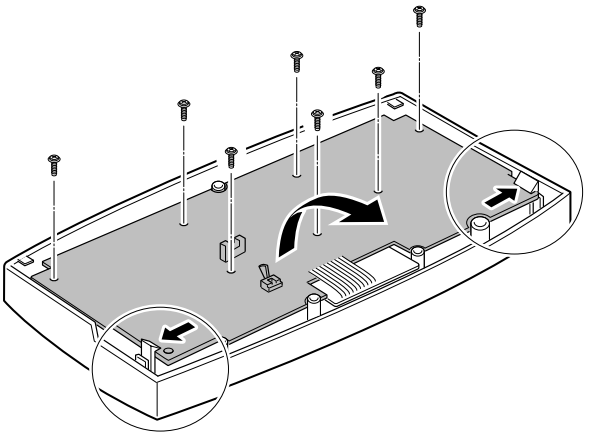


2. To unlatch the ADF rubber, push the plastic latches on the ADF rubber from the bottom of the OPE ass'y. Then remove the ADF rubber..

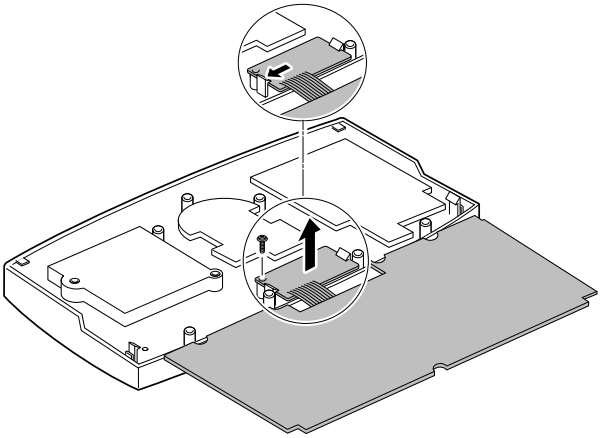


OPE PBA on the OPE Ass'y

1. Remove seven screws, release the plastic latches securing the board, then turn the board upside down.

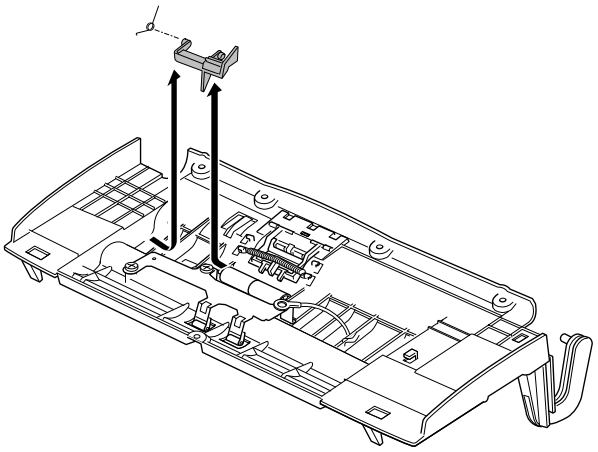


2. Remove a screw and release one of the latches securing the LCD board, then remove the OPE board with the LCD board.



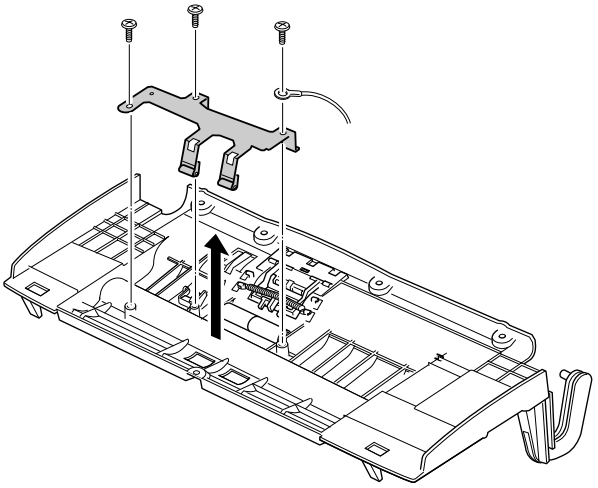
Lever Sensor on the OPE Ass'y

Squeeze the both ends of the lever sensor and lift it up.



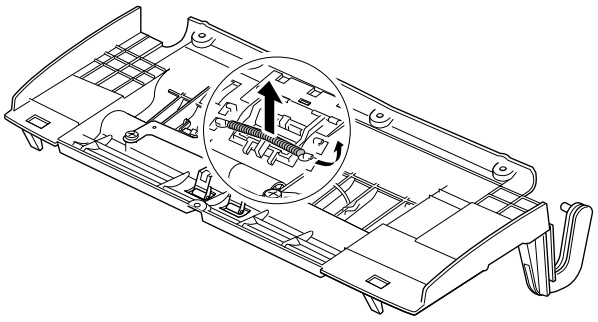
Pinch Spring on the OPE Ass'y

Remove three screws securing the pinch spring then take it out.



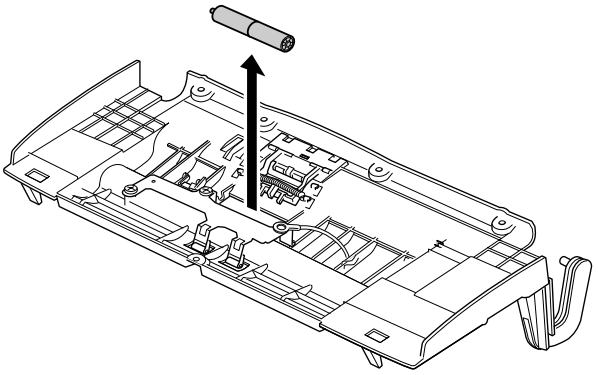
Spring on the OPE Ass'y

Release one end of the spring and take it out from the OPE ass'y.



Pinch on the OPE Ass'y

Remove the pinch from the OPE ass'y.

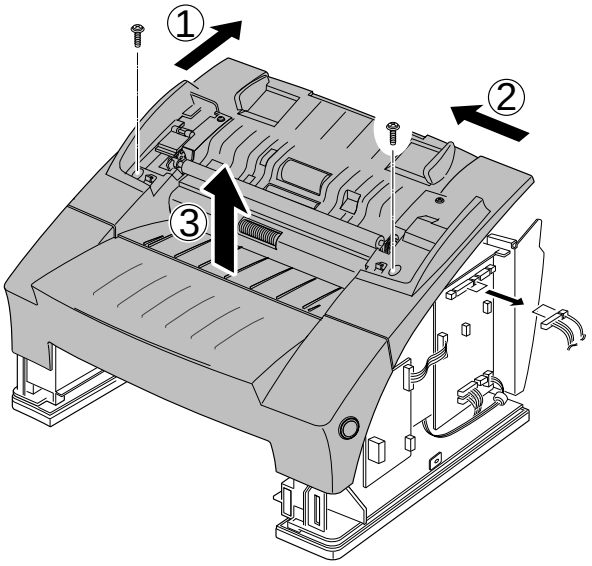


3-9 Top Assembly

1. Before you remove the cover, you should remove:

   – Rear cover (see page 3-3)
   – Left/Right side covers (see page 3-3, 3-4)
   – OPE ass'y (see page 4-8)

2. Remove two screws and unplug two connectors from the main board, then remove the Top ass'y pushing in the direction of the arrows in order.

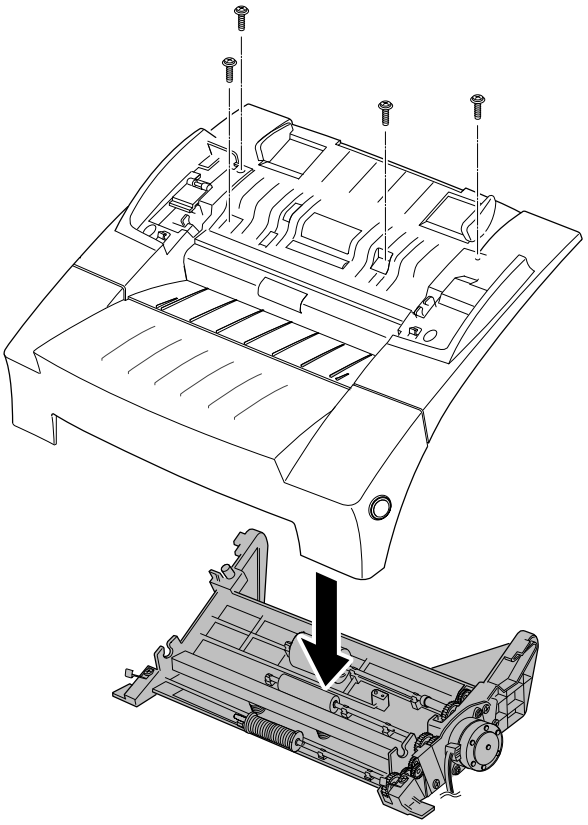


3-10 Scan Lower Frame

1. Before you remove the scan lower frame, you should remove:

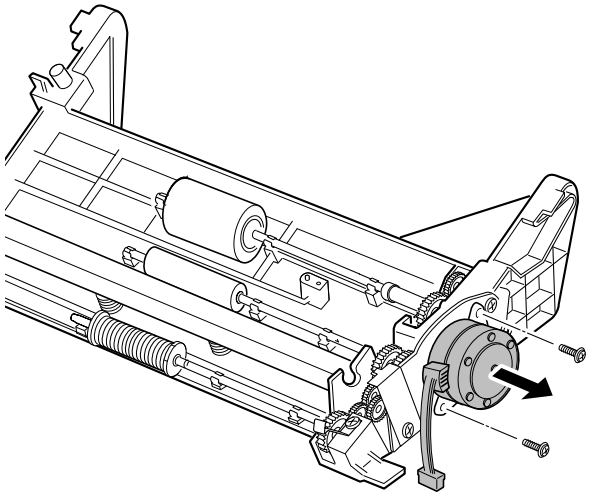
   – Rear cover (see page 3-3)
   – Left/Right side covers (see page 3-3, 3-4)
   – Top Assembly (see page above)

2. Remove four screws and remove the scan lower frame.



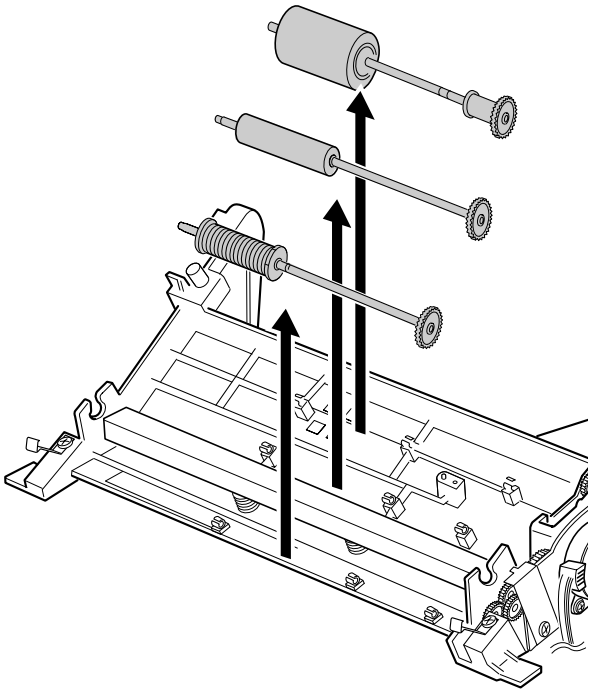
Scan Motor on the Scan Lower Frame

Remove two screws, and remove the scan motor.



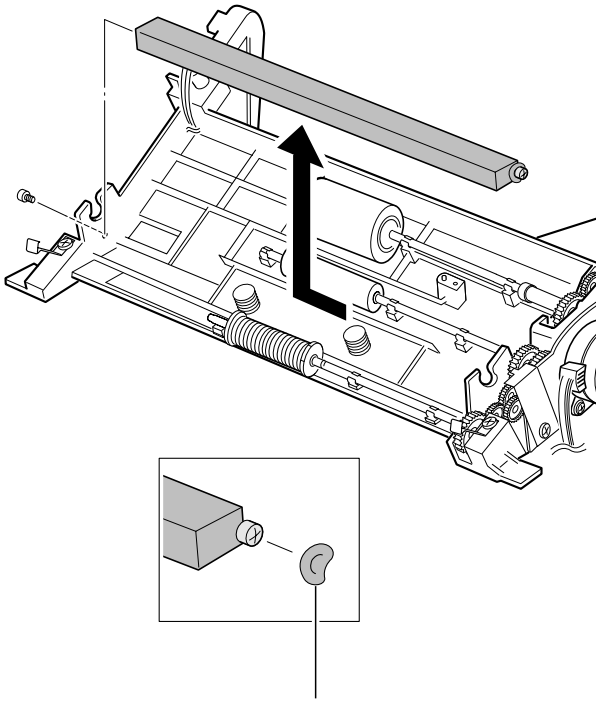
Rollers on the Scan Lower Frame

Remove rollers.



CIS on the Scan Lower Frame

Remove one screw, slide the CIS slightly in the direction of arrow, then lift it up.



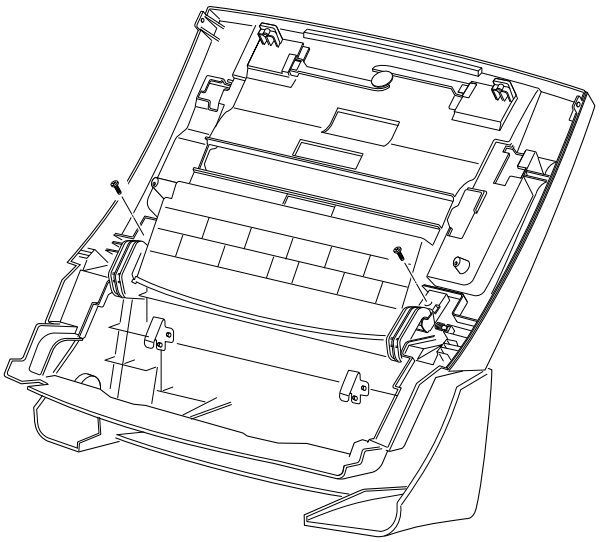
When you reassemble the CIS, be careful for the direction of this part.

3-11 Main Cover and Front Cover

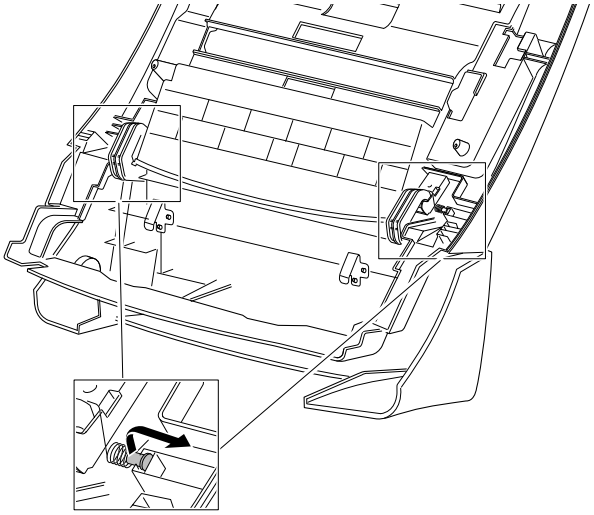
1. Before you remove the covers, you should remove:

   – Rear cover (see page 3-3)
   – Left/Right side covers (see page 3-3, 3-4)
   – OPE assembly (see page 3-5)
   – Top assembly (see page 3-8)
   – Scan lower frame (see page 3-8)

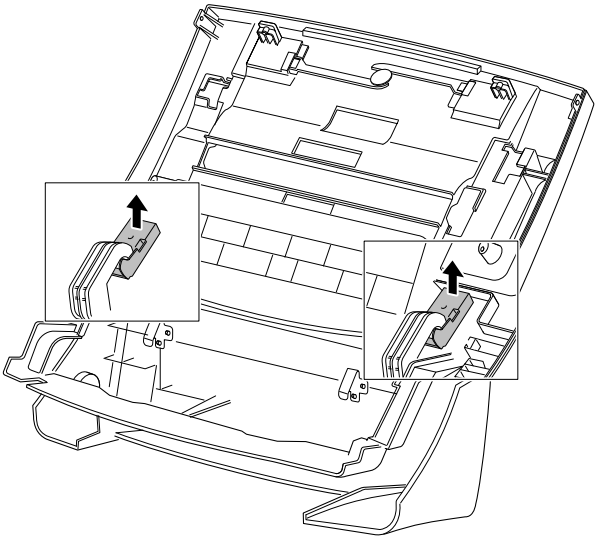
2. Remove two screws.



3. Remove shafts and springs connecting the two covers.



4. Remove the left and right hinge shafts. Now the two covers can be separated.

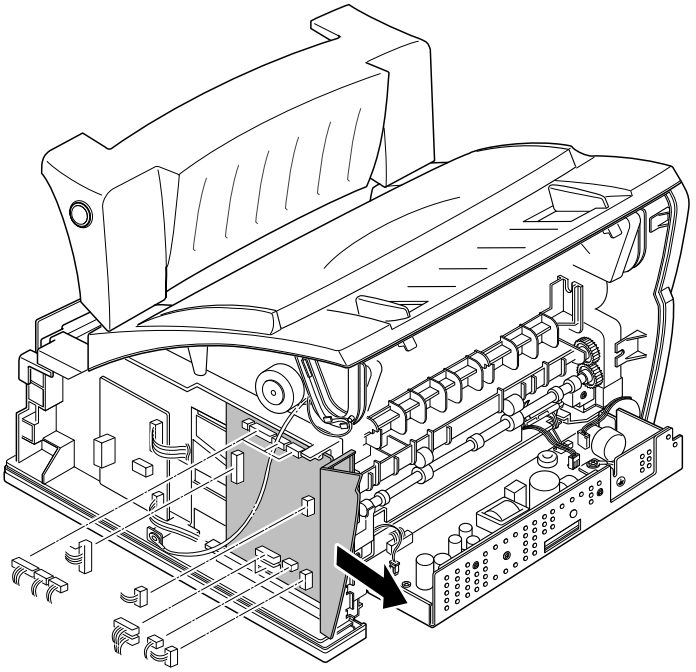


3-12 Main Board

1. Before you remove the main board, you should remove:

   – Rear cover (see page 3-3)
   – Right side cover (see page 3-4)

2. Unplug all connectors from the main board, then remove the board.

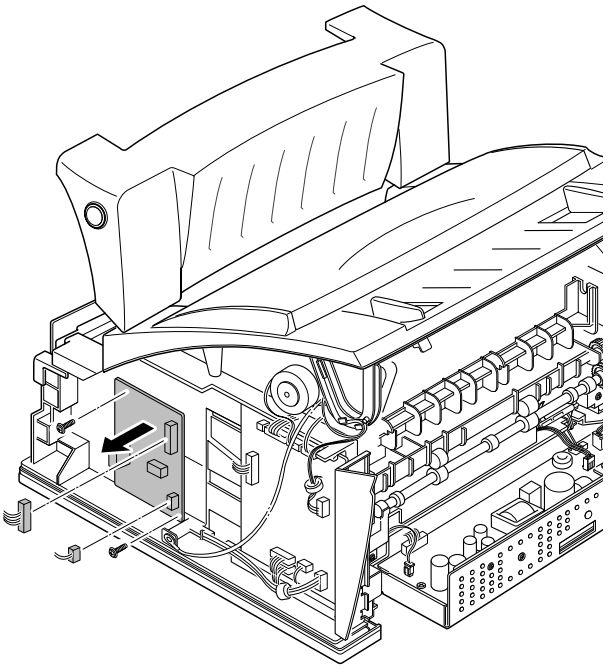


3-13 LIU Board

1. Before you remove the LIU board, you should remove:

   – Rear cover (see page 3-3)
   – Right side cover (see page 3-4)

2. Remove two screws, then unplug all connectors from the LIU board, then remove the board.

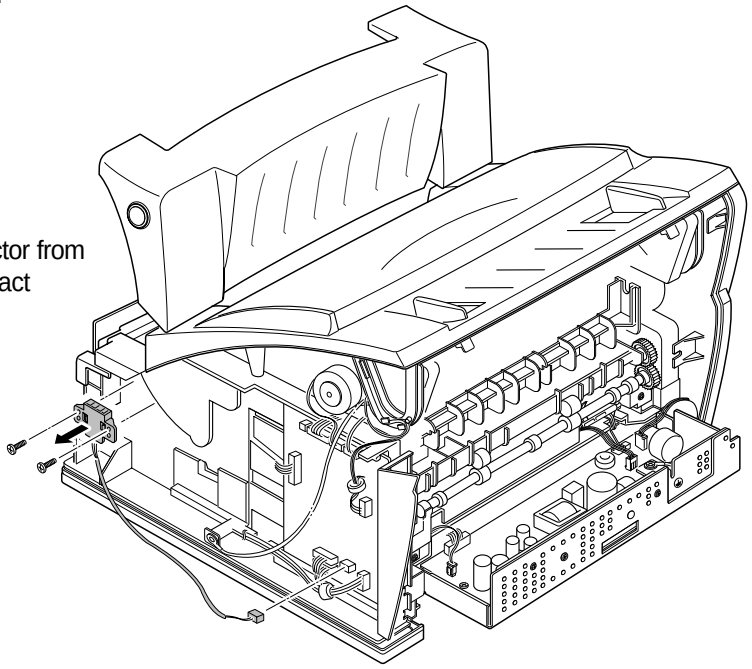


3-14 Socket Contact Assembly

1. Before you remove the assembly, you should remove:

   – Rear cover (see page 3-3)
   – Right side cover (see page 3-4)
   – LIU board (see page 3-11)

2. Remove two screws, and unplug one connector from the main board, then remove the socket contact ass'y.

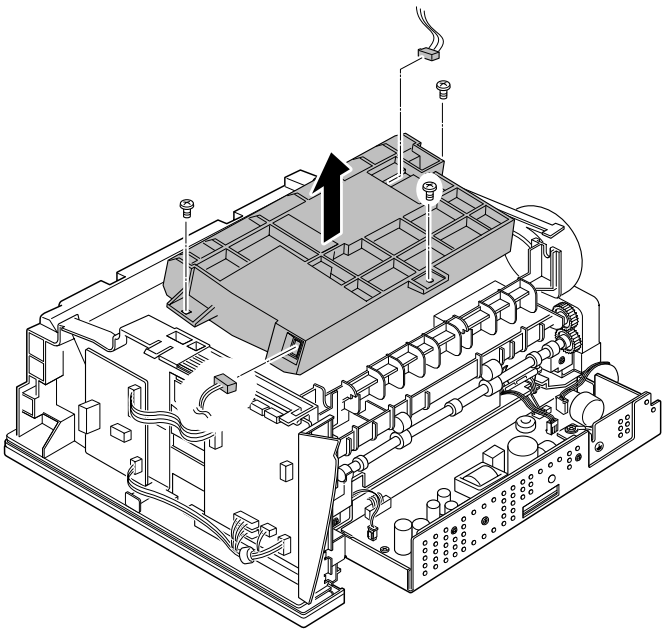


3-15 LSU

1. Before you remove the LSU, you should remove:

   – Rear cover (see page 3-3)
   – Left/Right side covers (see page 3-3, 3-4)
   – Top assembly (see page 3-8)

2. Remove three screws, unplug two connectors, then remove the LSU.

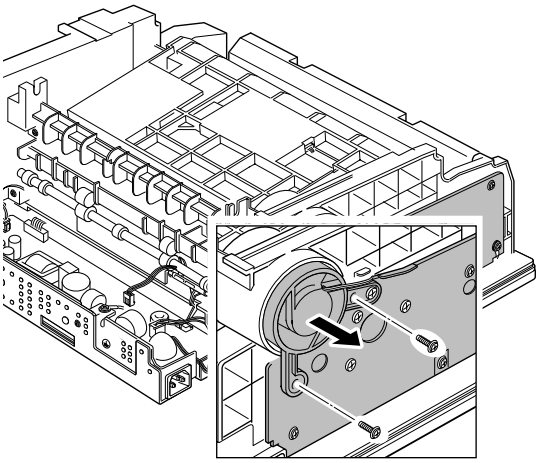


3-16 Motor Assembly and Fan

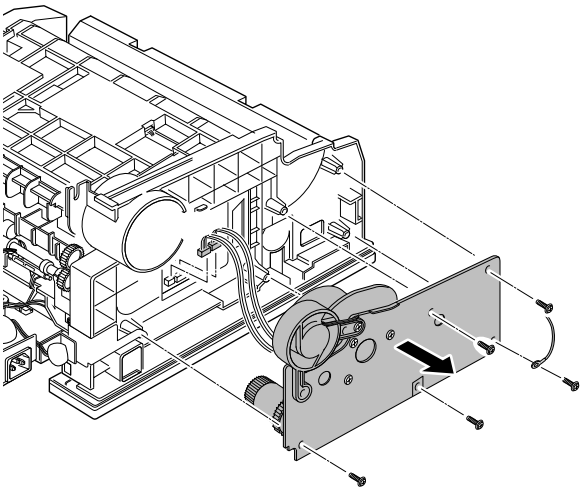
1. Before you remove the motor assembly, you should remove:

   – Rear cover (see page 3-3)
   – Left/Right side covers (see page 3-3, 3-4)
   – Top assembly (see page 3-8)

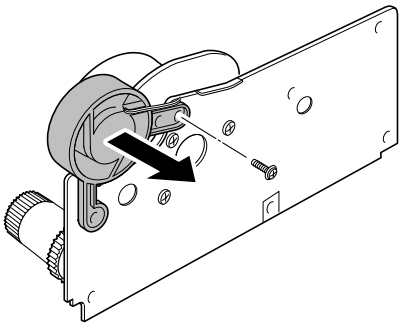
2. Remove two screws securing the fan.



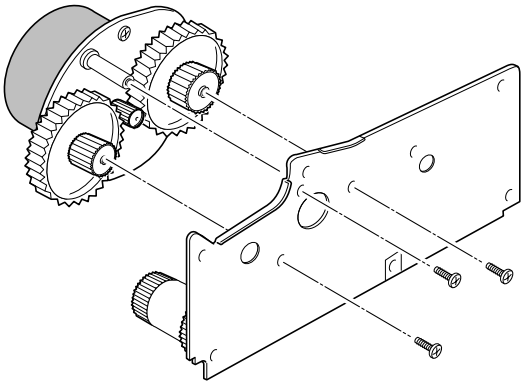
3. Remove five screws, unplug two connectors, then remove the motor assembly.



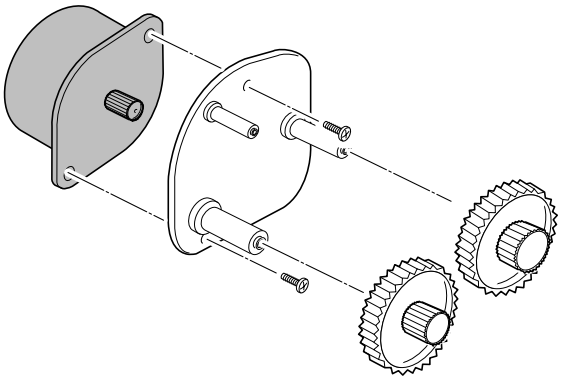
4. Remove a screw securing the fan and remove the fan.



5. Remove three screws from the motor assembly.



6. Remove two screws from the motor bracket and remove the motor.

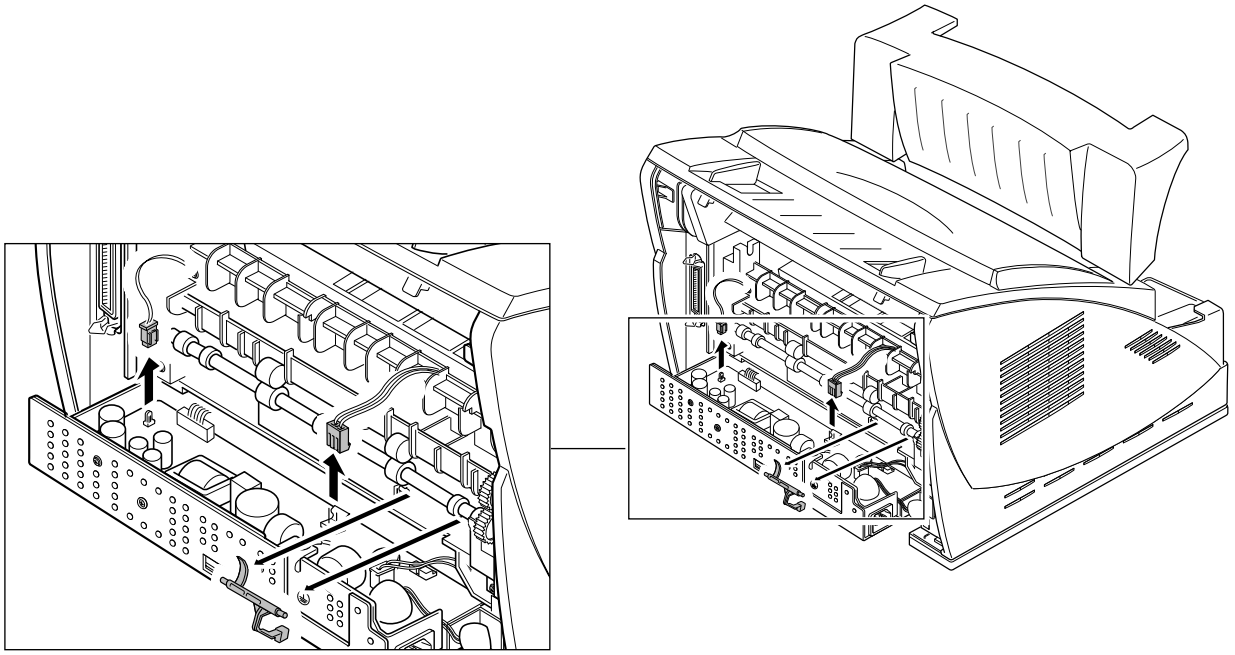


3-17 Fuser

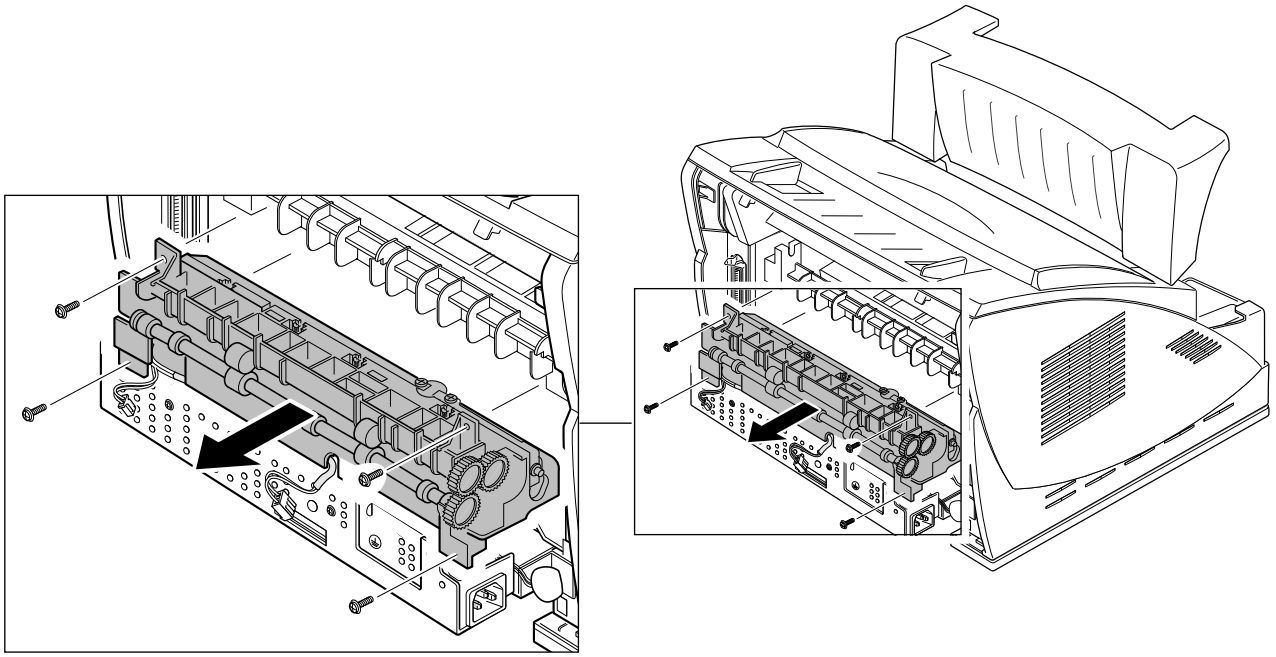
1. Before you remove the fuser, you should remove:

   – Rear cover (see page 3-3)

2. Remove the exit actuator and unplug two connectors.

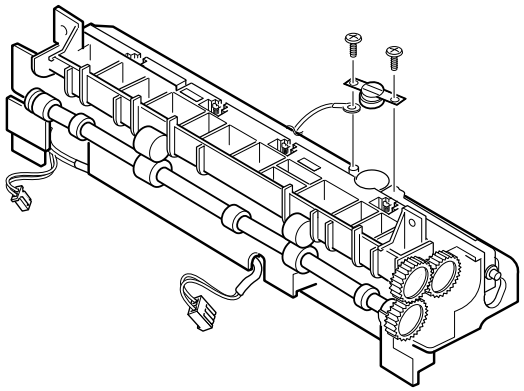


3. Remove four screws, then remove the fuser.



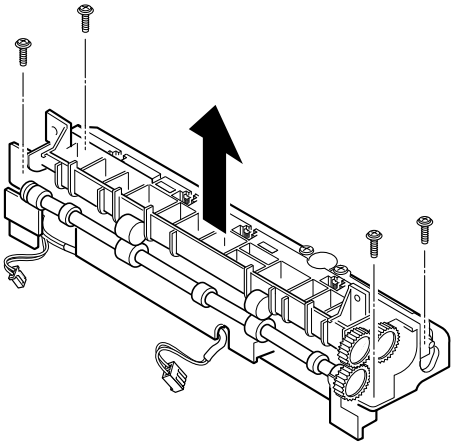
Thermostat on the Fuser

Remove two screws securing the thermostat and take it out.

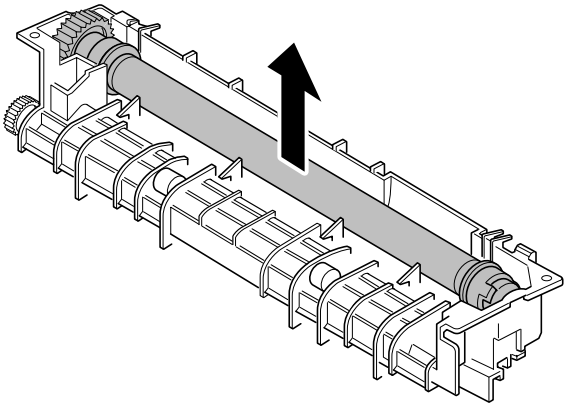


Thermistor on the Fuser

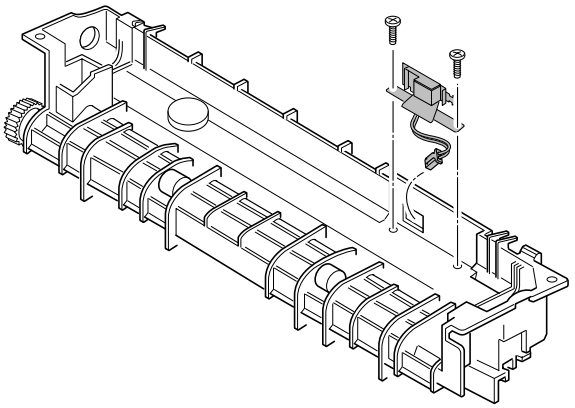
1. Remove four screws and remove the upper cover.



2. Remove the heat roller.

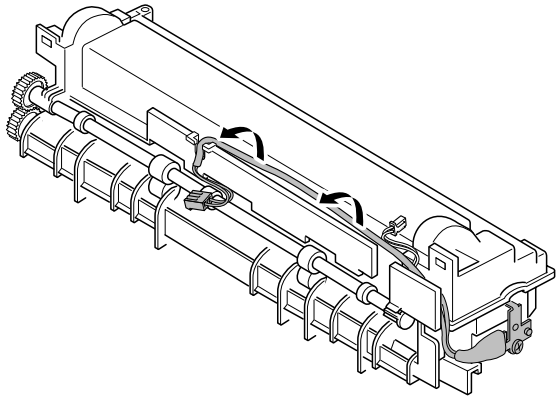


3. Remove two screws securing the thermistor, then take it out.

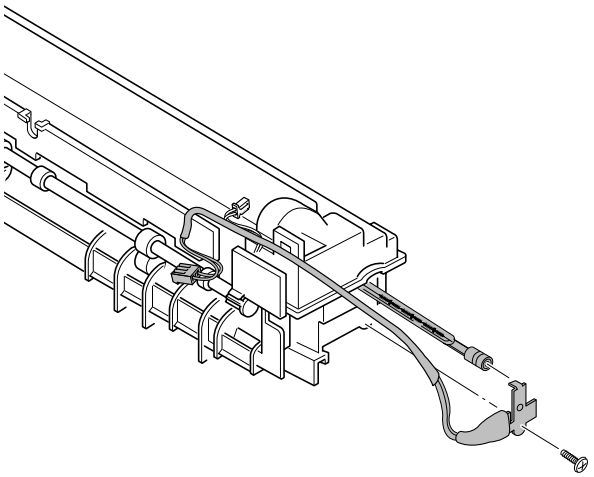


Halogen Lamp on the Fuser

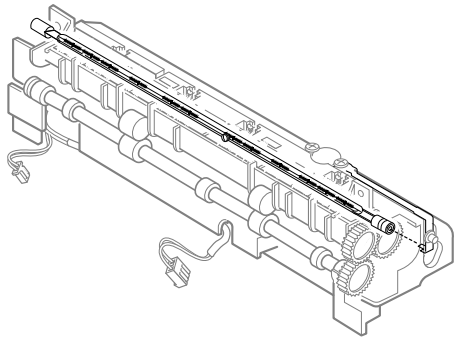
1. Release the connector cable from its recessed channel.



2. Remove one screw and remove the halogen lamp.

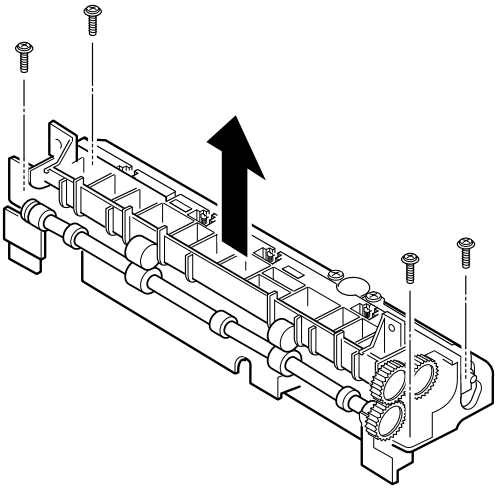


Note: When you reassemble the lamp, make sure that the halogen lamp is inserted in place.

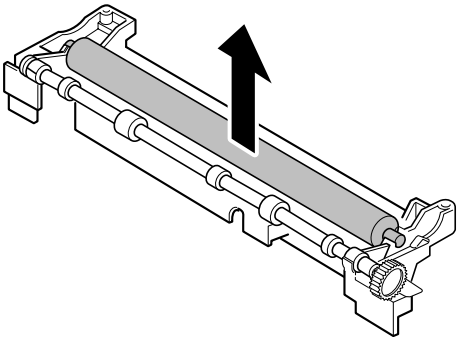


Roller on the Fuser

1. Remove four screws and remove the upper cover.



2. Remove the roller.

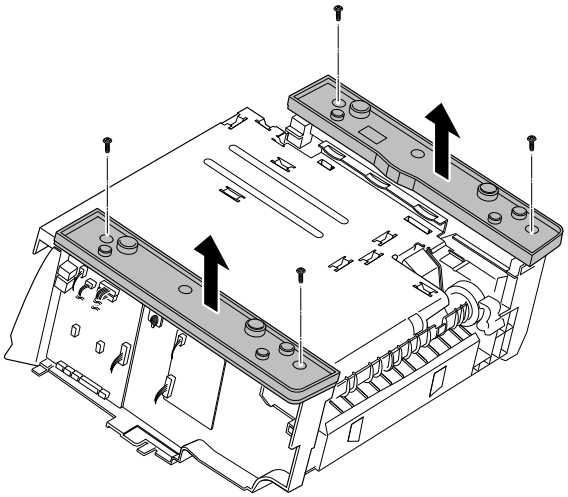


3-18 Engine Board and Others

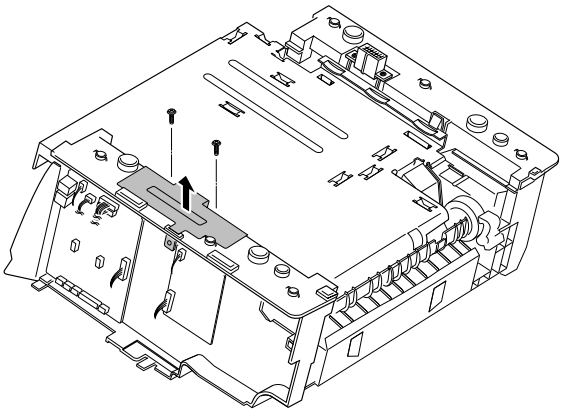
1. Before you remove the engine board, you should remove:

   – Rear cover (see page 3-3)
   – Left/Right side covers (see page 3-3, 3-4)
   – Top assembly (see page 3-8)

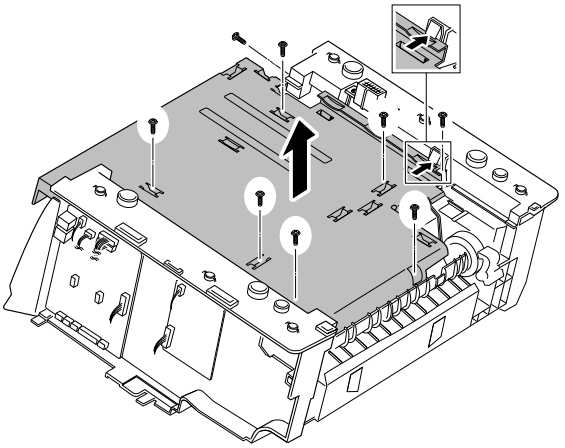
2. Remove four screws and remove the right and left base brackets.



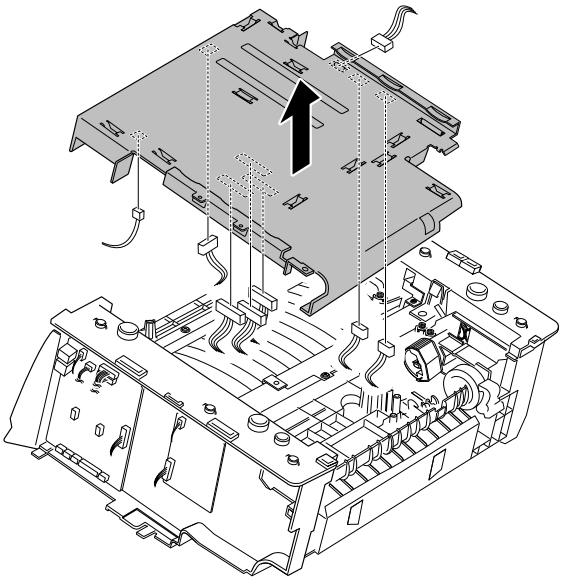
3. Remove two screws and remove the ICU ground.



4. Remove seven screws, and release the latch securing the PCU shield.

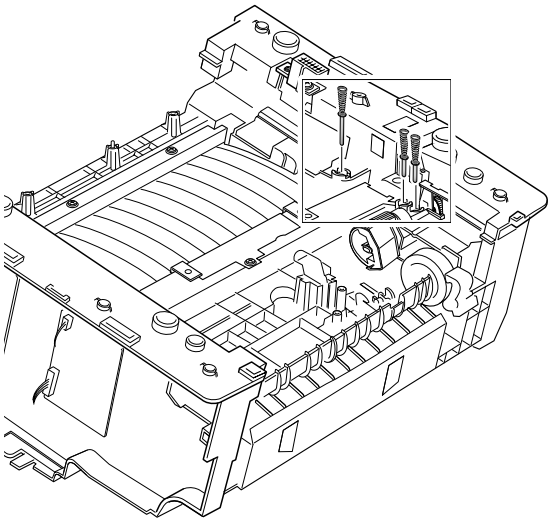


5. Unplug all connectors and remove PCU shield.



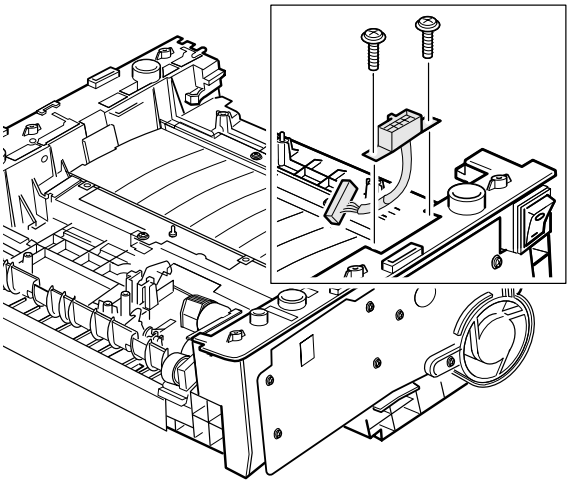
HV Terminals

Remove HV terminals. When you reassemble the terminals, make sure that the terminals are inserted in place.



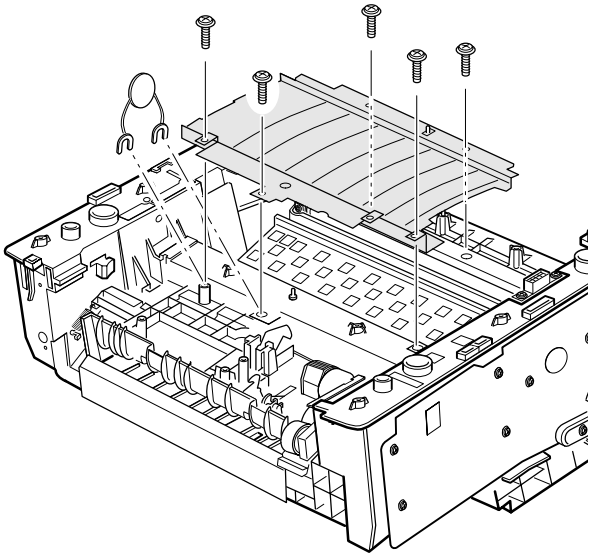
SCF Connector

Remove two screws and remove the connector.



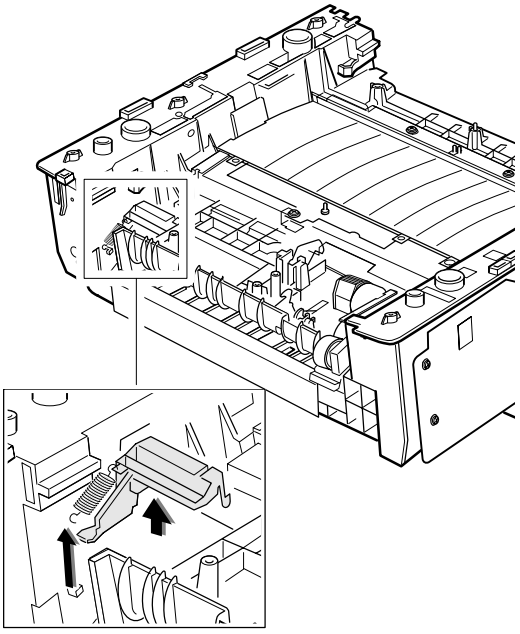
Transfer Guide

Remove five screws and remove the transfer guide.



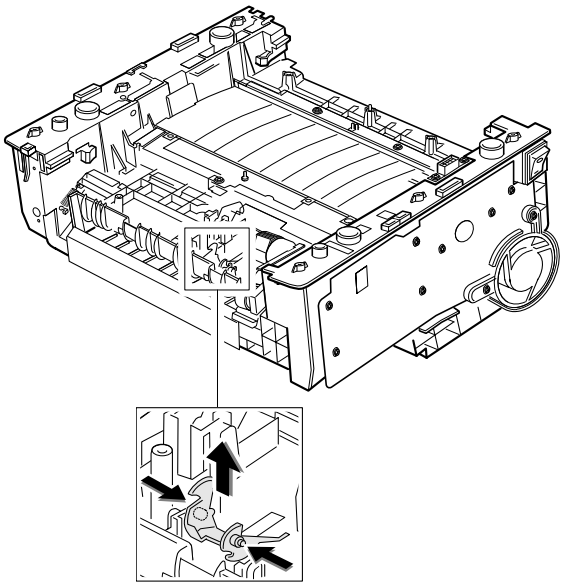
Cover Open Sensor

Remove the spring and remove the sensor.



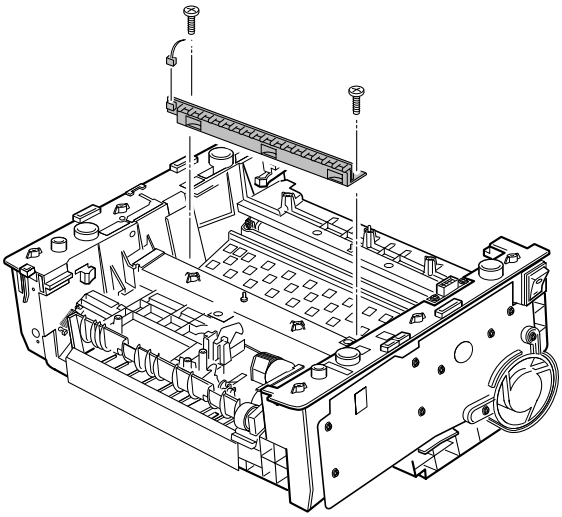
Pick-up Sensor

Squeeze both ends of the sensor and lift it up.



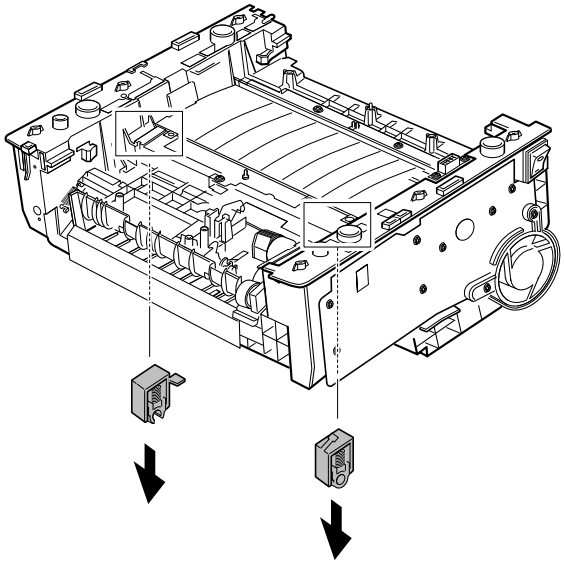
Erase Lamp

Remove two screws, unplug one connector, then remove the erase lamp.



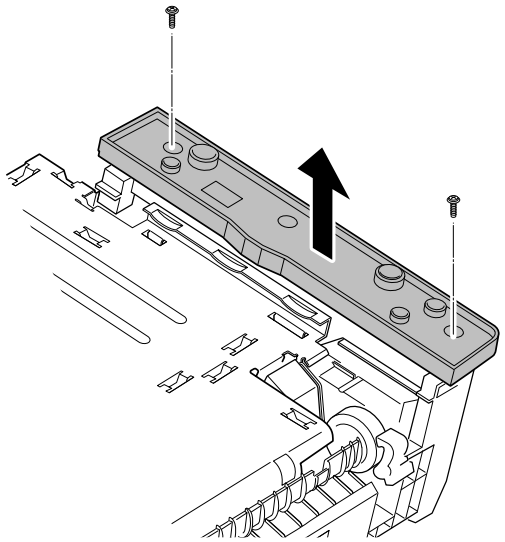
Transfer Roller Bushing

Push them downward to be released.

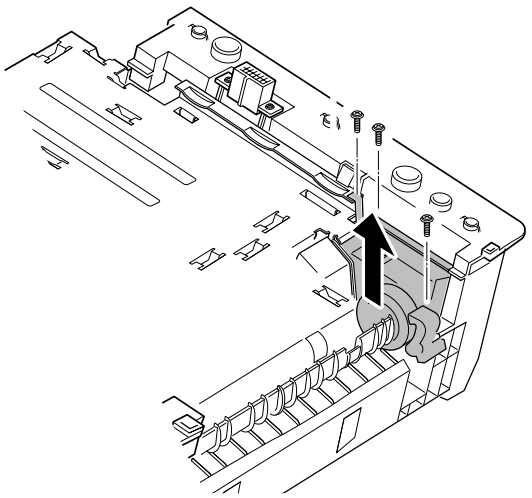


3-19 Pick-up Assembly

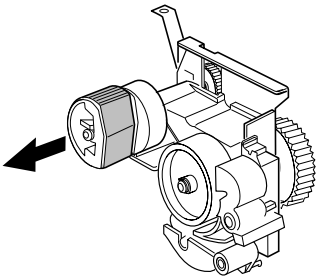
1. Remove two screws and remove the right base bracket.

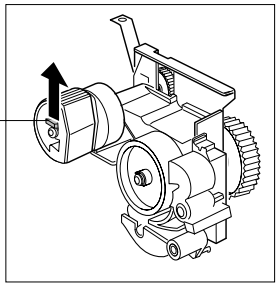


2. Remove three screws and remove Pick-up assembly.



3. Remove the pick-up rubber.





Pull it up to remove the rub-

4. Troubleshooting

4-1 Preventative Maintenance

The cycle period outlined below is a general guideline for maintenance. The example list is for an average usage of 50 transmitted and received documents per day. Environmental conditions and actual use will vary these factors. The cycle period given below is for reference only.

	COMPONENT	CLEANING CYCLE	REPLACEMENT CYCLE	SOLUTION
SCANNER	ADF Rubber	6 Months	10,000 Pages	
	ADF Roller	1 Year	20,000 Pages	
	Drive Roller	1 Year	50,000 Pages	
	White Roller	6 Months	50,000 Pages	
	CIS	6 Months		
PRINTER	Cartridge		6,000 Pages	
	Pickup Roller	1 Year	50,000 Pages	
	Feed Roller	1 Year	50,000 Pages	
	Transfer Roller		50,000 Pages	
	Fuser		30,000 Pages	

4-2 Diagnostics

This section describes methods and procedures to isolate the cause of a malfunction in the machine. This machine displays diagnostic information on the LCD. In addition, it can perform a series of tests that allow the machine to observe individual machine functions.

4-2-1 Error Messages

Error Message	Description	Solution
RETRY REDIAL?	The machine is waiting the programmed interval to automatically redial.	You can press START to immediately redial, or STOP to cancel the redial operation.
COMM. ERROR	A problem with the facsimile communications has occurred.	Try again.
DOCUMENT JAM	Loaded document has Jammed in the feeder	Clear the document Jam.

Error Message	Description	Solution
DOOR OPEN OR NO TONER CARTRIDGE	The front cover is not securely latched.	Replace the cover firmly until it clicks in place.
	No toner cartridge in the fax machine. The machine stops.	Install the toner cartridge in place properly.
GROUP NOT AVAILABLE	You have tried to select a group location where only a single location number can be used, such as when adding locations for a multi-dial operation.	Try again, check location for group.
LINE ERROR	Your unit cannot connect with the remote machine, or has lost contact because of a problem on the phone line.	Try again. If failure persists, wait an hour or so for the line to clear then try again.
LOAD DOCUMENT	You have attempted to set up a sending operation with no document loaded.	Load a document and try again.
MEMORY FULL	The memory has become full.	Either delete unnecessary documents, or retransmit after more memory becomes available, or split the transmission into more than one operation.
NO ANSWER	The remote machine was not answered after all the redial attempts.	Try again. Make sure the remote machine is OK.
NO. NOT ASSIGNED	The one-touch or speed dial location you tried to use has no number assigned to it.	Dial the number manually with the keypad, or assign the number.
NO PAPER	The recording paper has run out. The printer system stops.	Load the recording paper in the paper feeder.
OVERHEAT	The printer part has overheated.	Your unit will automatically return to the standby mode when it cools down to normal operating temperature. If failure persists, call service.
PAPER JAM 0	Recording paper has jammed in paper feeding area.	Press STOP and clear the jam.
PAPER JAM 1	Recording paper has jammed inside the unit.	Clear the jam.

Error Message	Description	Solution
PAPER JAM 2	The jammed paper still remains inside the unit.	Clear the jam.
POLL CODE ERROR	When setting up to poll another fax machine, you have used an incorrect poll code.	Enter the correct poll code.
POLLING ERROR	The remote fax machine you want to poll is not ready to respond to your poll.	The remote operator should know in advance that you are polling and have their fax unit loaded with the original document.
POWER FAILURE	A power failure has occurred.	If there has been documents stored in memory. Power failure report will be printed automatically when the power is restored.
PLEASE WAIT	The machine is warming up and is off line.	Wait until the machine is on-line.

4-2-2 Test Mode

The test mode is used to test certain functions of the machine. The available tests are:

- •User mode : Clean drum ' Adjust shading ' Notify toner low
- •Tech mode : Switch Test ' Modem Test ' Memory Test ' ROM Test ' DRAM Test ' Pattern Test

To enter the Test Mode:

1. Get into the Tech mode by pressing **Menu**, **#**, **1**, **9**, **3**, **4**.
2. In Tech mode, press **Menu**, and '**Maintenance**' on the one-touch keypad.
3. Scroll to the options by pressing ▲or ▼repeatedly until you find the one you want.
4. Press **Enter** to initiate the test mode.

Cleaning DRUM

This procedure removes excess toner on the OPC drum.

1. Make sure that paper is loaded in the automatic feeder.
2. Press Menu, and Self-Test on the one-touch keypad.
3. Press Enter. The machine automatically pulls in a sheet of paper, and prints out. The toner particles on the OPC drum surface is fixed to the paper.

ADJUST Shading

This procedure is needed to set (make) a new shading reference value. The reference value is preset at factory. However, when the CIS or the main board is replaced with new one, the reference value must be set again.
Load the white, letter-sized paper into the feeder and perform the test mode (MENU+ONE-TOUCH 'SYSTEM SETUP'). Follow the next steps as instructed through the LCD window. After the shading value is newly set, the shading value pattern is automatically printed. The shading value pattern shows the value of the white reference level of the Contact Image Sensor. Check for the waveform in the pattern. It is best when the wave form is level. If there are many points sharply broken, perform the Make shading procedure several times until you get a level waveform.

Switch Test

This test checks the operation of the LCD display and the LED indicators that interface the switches on the operation panel.

Modem Test

This test causes the machine to generate a particular frequency to verify the operation of the modem control circuits and the modem.

Memory Test

This test is used for checking the Random Access Memory (RAM) on the main PBA. If all memory is working normally, the LCD shows TESTING OK!.
When this testing is carried out, any picture data stored in memory is erased.

ROM Test

This test mode will display and check the current ROM level in your machine.

FLASH VER. : 1.0.0 V
ENGINE VER : 1.0.0 V

DRAM TEST

This test checks the DRAM memory status and shows if it is functioning properly

Pattern Test

1. Pattern Test ?
2. Pattern 1 ? - There are 4 different pattern tests. Scroll to the options by pressing ▲ or ▼ repeatedly until you find the one you want.
3. Press START key.
4. Key in the number of pages.
5. Press START key.

Notify Toner Low

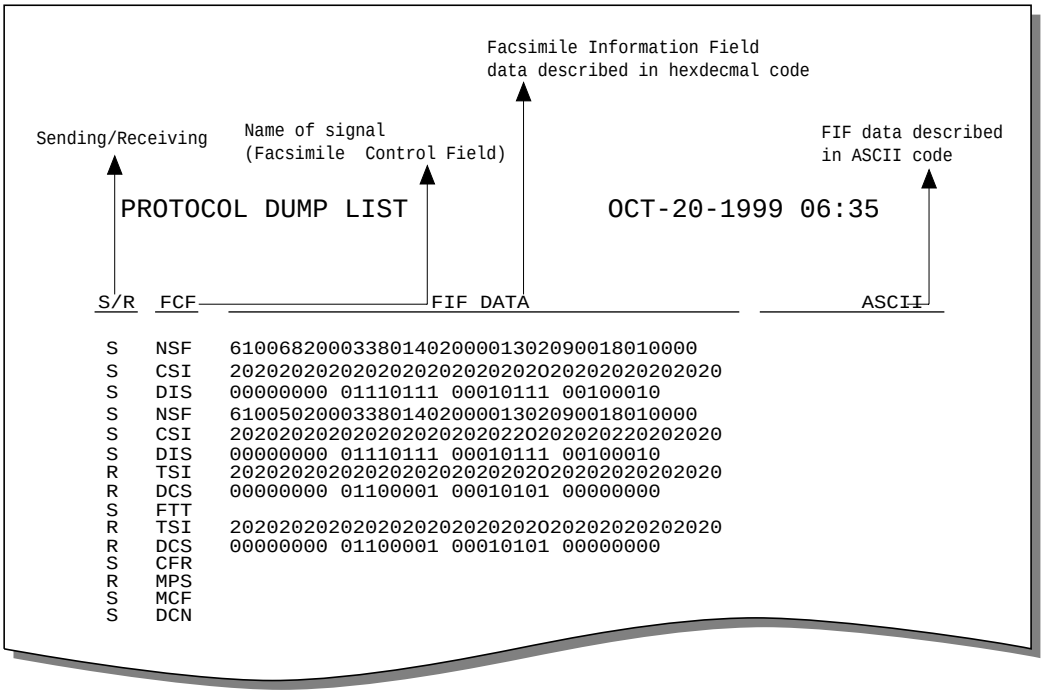
With this feature enabled, when the toner becomes low, the toner low information will be sent to ta specified contact point, for example, the service company. After you access this menu, select ON, and when the LCD prompts, enter the name and the number of the contact point, the customer's fax number, the model name, and the serial number.

4-2-3 Maintenance List

A number of reports can be printed from the fax machine within the test mode. The protocol list and memory dump list all contain detailed information which may be required when contacting technical support.

To printout the protocol and memory dump lists:

1. Get into the Tech mode by pressing **Menu**, **#**, **1**, **9**, **3**, **4**.
2. In Tech mode, press **Menu**, and '**Tx. Confirm**' on the one-touch keypad.
3. Press ▲or▼ repeatedly until you find the Protocol Dump List. When you find 'PROTOCOL REPORT?', press ENTER. SAMPLE OF A PROTOCOL DUMP LIST



< SAMPLE OF A PROTOCOL DUMP LIST >

4-2-4 Engine Test

The Engine test mode is used to check the operation of the components related the printer engine. In this mode, the tests are classified into the five numbers. The available tests are:

0 : Motor Start/Stop, Solenoid On/Off, Qlamp On/Off, Motor Fan On/Off, Rear Fan On/Off
1 : LSUmotor On/Off, LSUoperation On/Off, LD On/Off
2 : Feed sensor On/Off, Exit sensor On/Off, Paper sensor On/Off, Cover sensor On/Off
3 : MHV On/Off, Devbias On/Off
4 : SCF Motor On/Off, SCF Solenoid On/Off, SCF Paper Empty On/Off, SCF Installed
5 : THV EN On/Off,THV On/Off,THV NEG On/Off

To enter the Engine test mode:

1. Press **Menu**, **#**, **1**, **9**, **3**, **1** in sequence.
2. When you see 'ENGINE TEST?', press Start 'ENGINE TEST NO>O-5' appears in LCD window.
3. Enter the number you want.
4. Scroll to the options by pressing ▲or▼ repeatedly until you find the one you want.
5. Press Start to begin the test.
6. After the engine test is finished, press Stop to exit the Engine test mode.

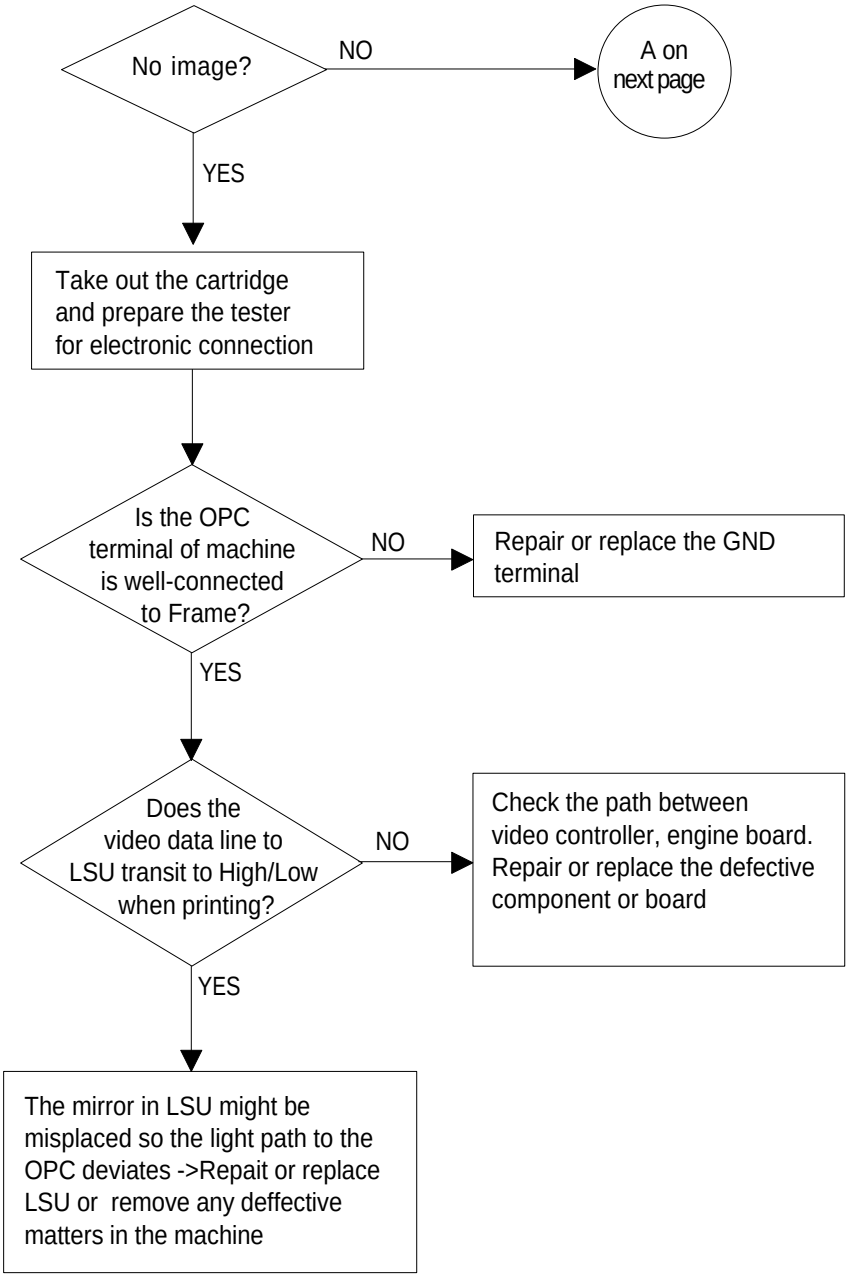
4-3 Print Quality

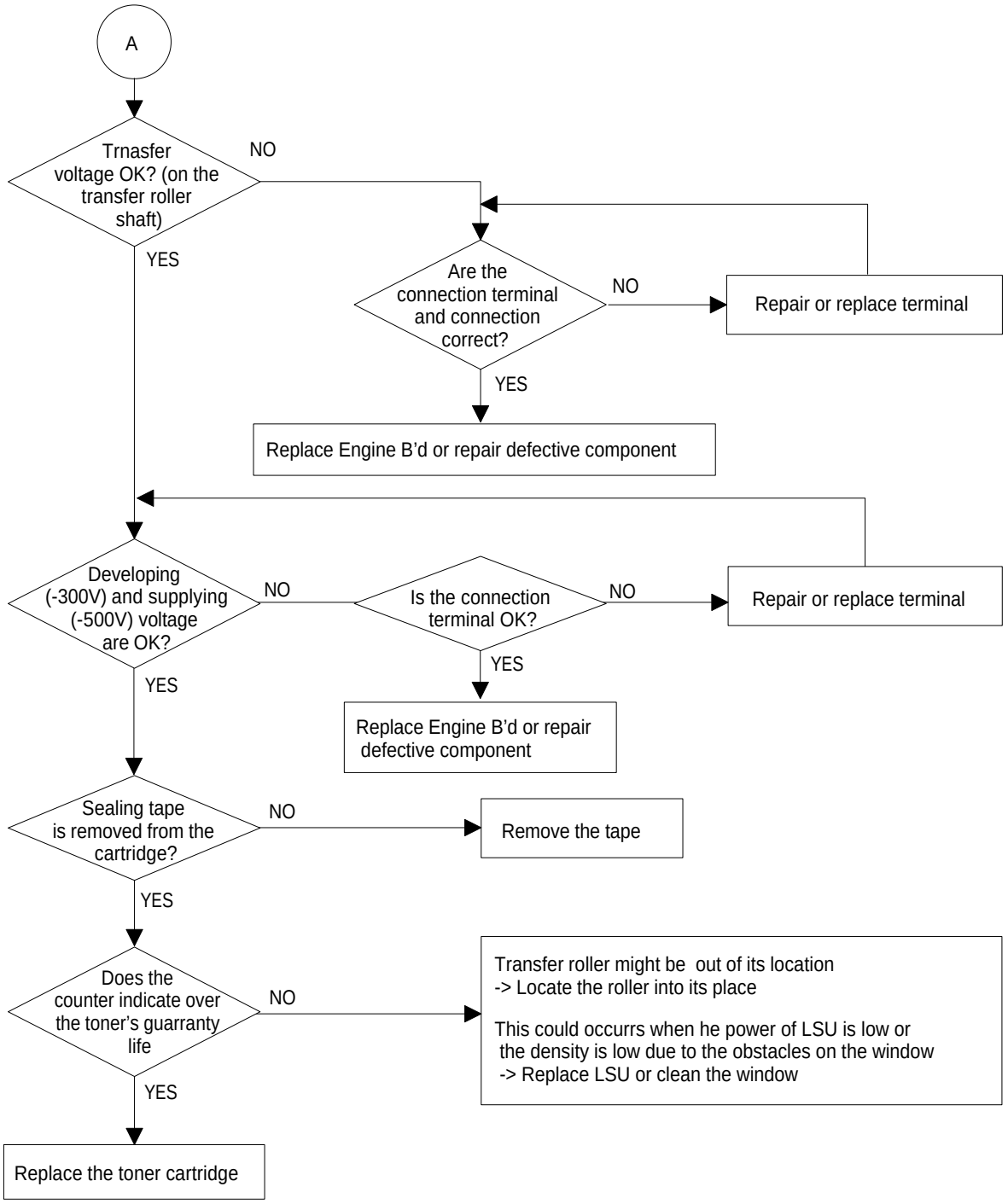
Error Status	Check	Solution
Vertical black line and band	1. Bad blade of Toner cartridge 2. LSU	1. Change Toner cartridge 2. Replace LSU
Vertical white line	1. LSU window contamination 2. Toner cartridge	1. Clean LSU window 2. If not LSU, change Toner cartridge
No image	1. Seal tape is removed? 2. GND OPC is well grounded? 3. LSU running well? 4. Biss voltage is normal? 5. Lower toner?	1. Removing seal tipe 2. Measure the resistance between frame ground and the ground spring attached frame. Confirm stable ground. Unless bad ground, detach cabinet, check where is bad point 3.Adjust LSU or replace it 4. Normal Dev bias = -300V 5. Shake toner cartridge and print.If a liitke good, toner is empty
Light image	1. Check seal tape removing 2. LSU light power normal? 3. Enough toner? 4. High charger voltage? 5. Lower bias voltage 6. Contamination of high voltage contact 7. Transfer volatge and roller	1. Check and remove tape 2. LSU light power check is difficult. Compare with new one and check. 3. Check toner and developer counter 4~5. Measure all high voltage output 6. Leakage toner cause bad contact and increase contact resistance. Clean contaminated area.
Dark image	1. LSU light power normal? 2. Bias voltage output is high? 3. Video data is always supplied?	1. Check the rated level and replace 2. Set to power rating 3. Replace defected board
Background	1. High voltage output is normal? 2. C/R of Toner cartridge is contaminated?	1. Adjust to the rated status 2. Replace Toner cartridge
Ghost	1. High voltage output 2. Bad high voltage contact	1. Check every high voltage 2. Clean the inside machine or replace toner cartridge

Error Status	Check	Solution
Stains on back of paper	1. Contamination of transfer roller 2. Stains of paper path 3. Pressure roller's contamination	1. Clean the transfer roller with vaccum cleaner 2. Clean the area of paper path with cloth or air cleaner. 3. Remove fuser and replace it
Poor Fusing	1. Use recommended paper? 2. Check fusing temperature 3. The machine was under the low temperature for a long time?	1. Should use recommended paper 2. Check engine board. If you have not thermometer, measure the thermistor voltage to CPU, If 2.98V±5% in printing CPU works well. Then, disassemble fuser and check the thermistor contact and thermistor. 3. Re-check after putting the machine in the warm place for certain period.
Partial blank image (not periodic)	1. Toner is low? 2. The toner cartridge is out of position?	1. Replace Toner cartridge 2. Checkand adjust
Partial blank image (periodic)	1. Develope roller scar or particle 2. Scar or particle (94 mm) 3. Transfer roller scar or particle (47 mm)	1~2. Replace toner cartridge 3. Replace transfer roller
Different image density (left and right)	1. Charge roller's pressure force unbalance 2. Dev. roller and OPC or Dev. roller and blade's pressure force unbalance 3. Transfer roller's pressure force unbalance of each side	1~2. Change toner cartridge 3. Check left and right spring of transfer roller and the spring pressing the developer inside the machine
Horizonral band	1. Unstable high voltage contact 2. Charge roller's contamination 3. Contamination of heat roller 4. Malfunction of LSU	1. Clean each contact and check good contact 2. Clean charge roller 3. Replace fuser unit 4. Check engine B'd

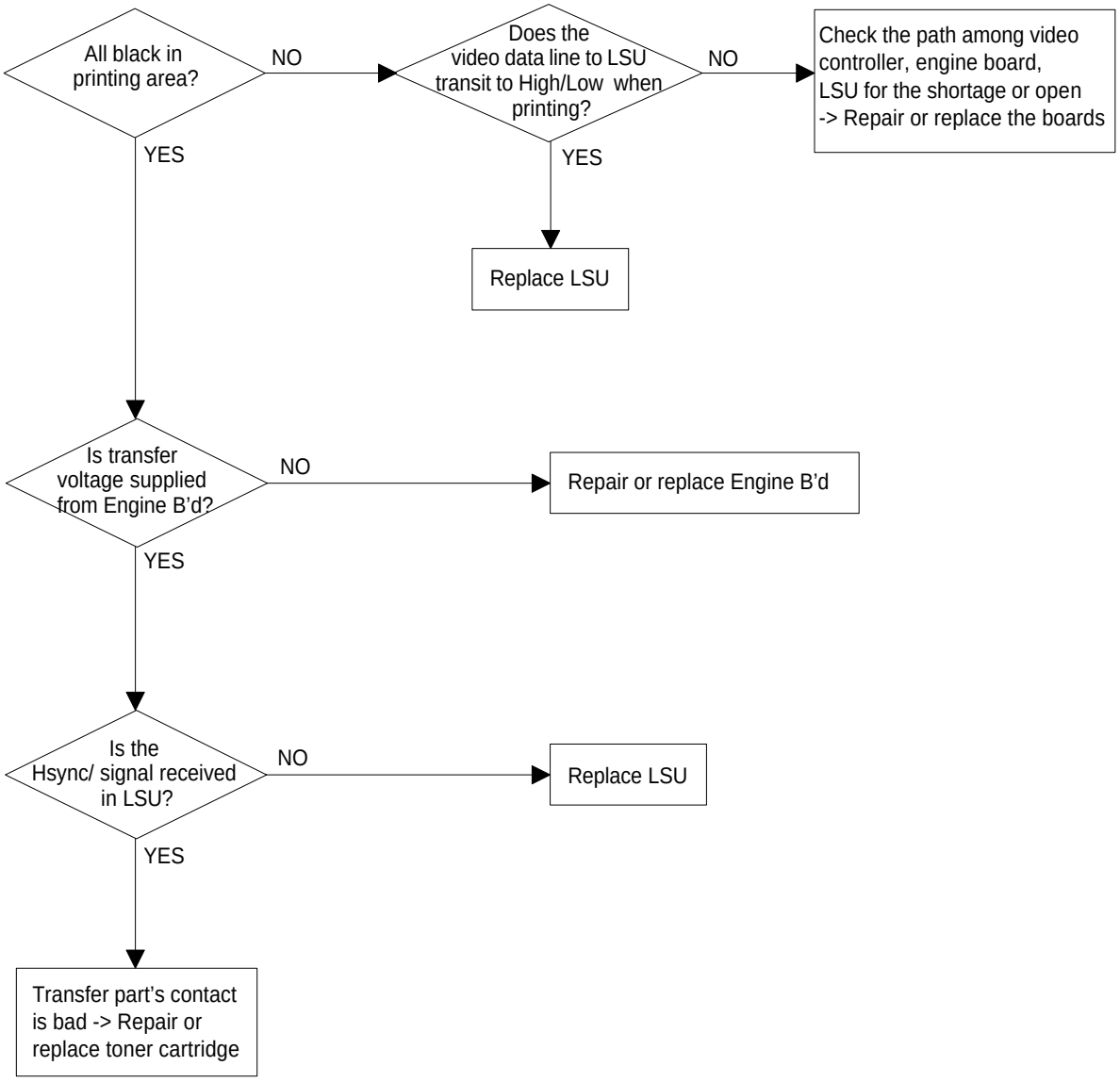
No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	94.2mm	White spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	31mm	Horizontal density band
4	Develope Roller	46.7mm	Horizontal density band
5	Transfer Roller	47.1mm	Black side contamination/transfer fault
6	Heat Roller	56.4mm	Black spot, White spot
7	Pressure Roller	56.5mm	Black side contamination

No Image

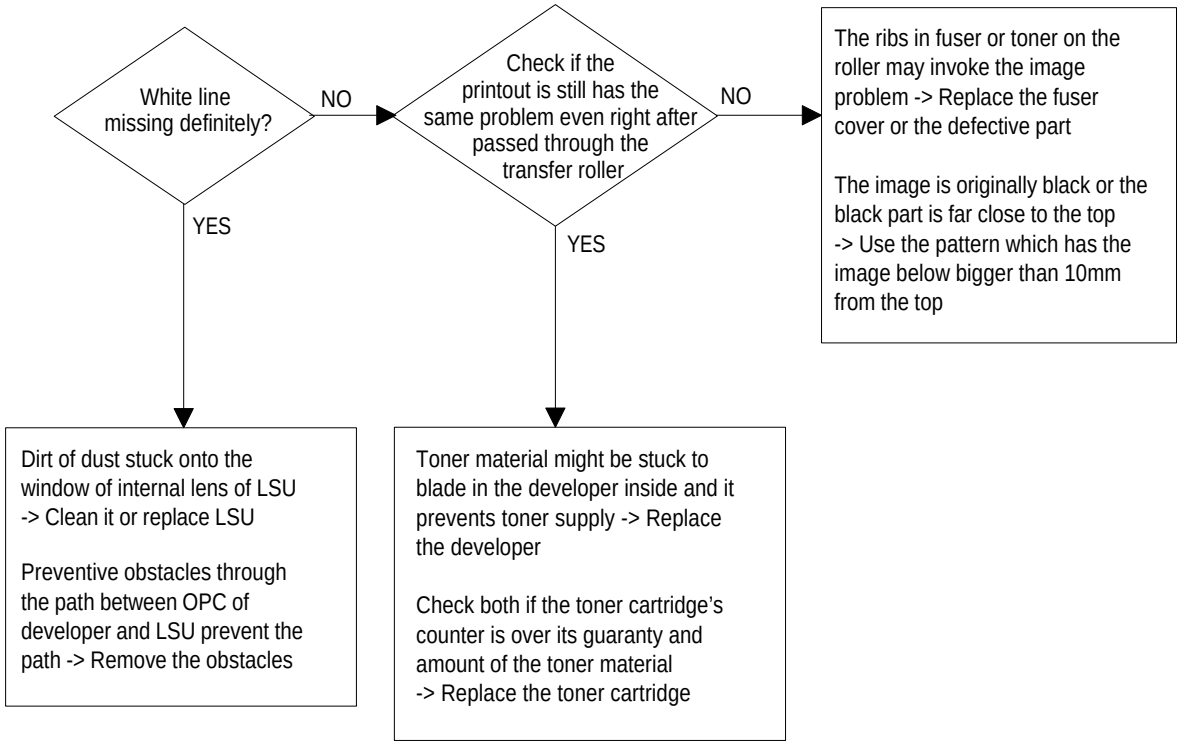

No image?
NO
A on next page
YES
Take out the cartridge and prepare the tester for electronic connection
Is the OPC terminal of machine is well-connected to Frame?
NO
Repair or replace the GND terminal
YES
Does the video data line to LSU transit to High/Low when printing?
NO
Check the path between video controller, engine board. Repair or replace the defective component or board
YES
The mirror in LSU might be misplaced so the light path to the OPC deviates ->Repait or replace LSU or remove any deffective matters in the machine


A
Trnasfer voltage OK? (on the transfer roller shaft)
NO
YES
Are the connection terminal and connection correct?
NO
Repair or replace terminal
YES
Replace Engine B'd or repair defective component
Developing (-300V) and supplying (-500V) voltage are OK?
NO
Is the connection terminal OK?
NO
Repair or replace terminal
YES
YES
Replace Engine B'd or repair defective component
Sealing tape is removed from the cartridge?
NO
Remove the tape
YES
Does the counter indicate over the toner's guarranty life
NO
Transfer roller might be out of its location
-> Locate the roller into its place
This could occurrs when he power of LSU is low or the density is low due to the obstacles on the window
-> Replace LSU or clean the window
YES
Replace the toner cartridge

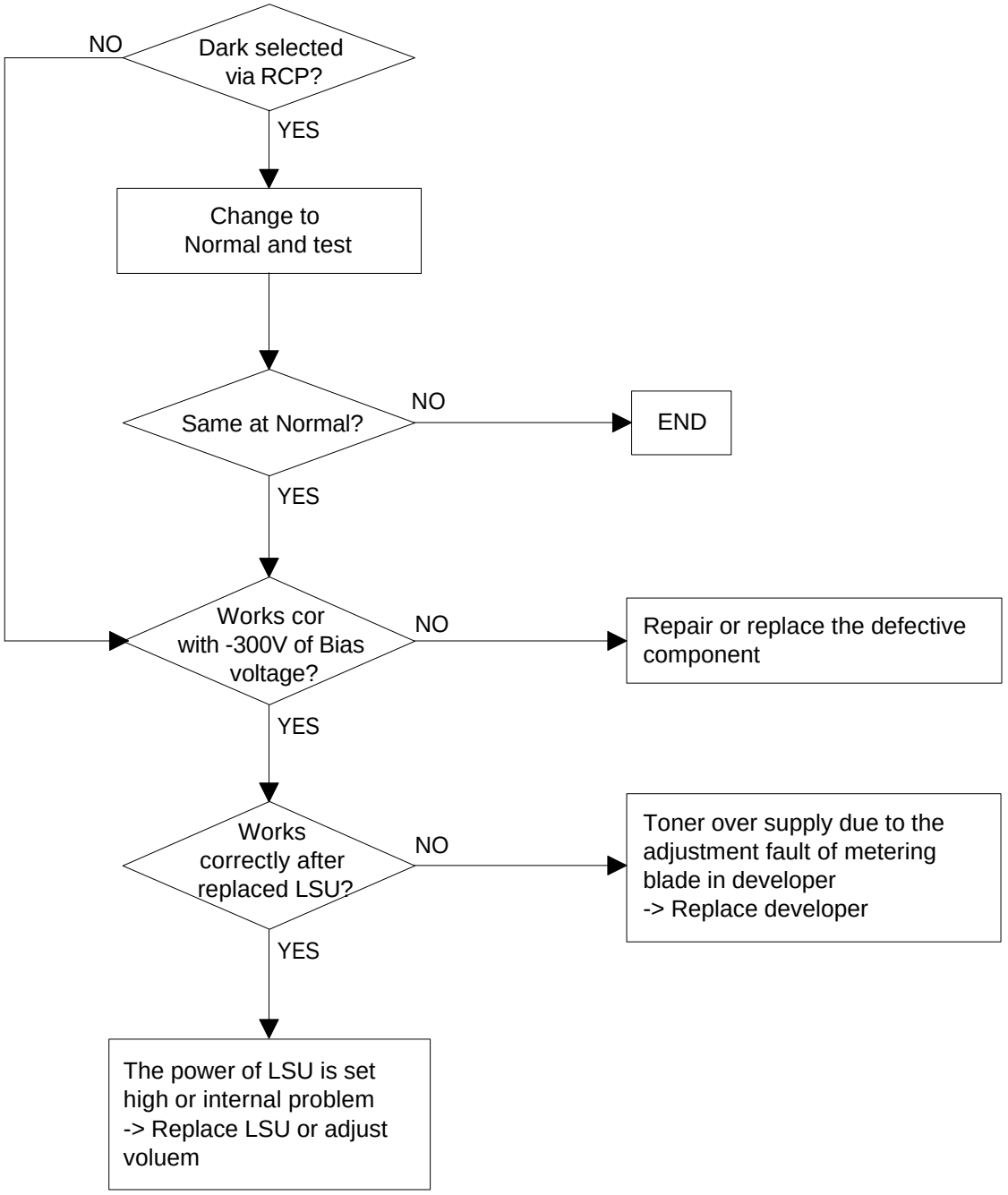
All Black


All black in printing area?
NO
Does the video data line to LSU transit to High/Low when printing?
NO
Check the path among video controller, engine board, LSU for the shortage or open -> Repair or replace the boards
YES
YES
Replace LSU
Is transfer voltage supplied from Engine B'd?
NO
Repair or replace Engine B'd
YES
Is the Hsync/ signal received in LSU?
NO
Replace LSU
YES
Transfer part's contact is bad -> Repair or replace toner cartridge

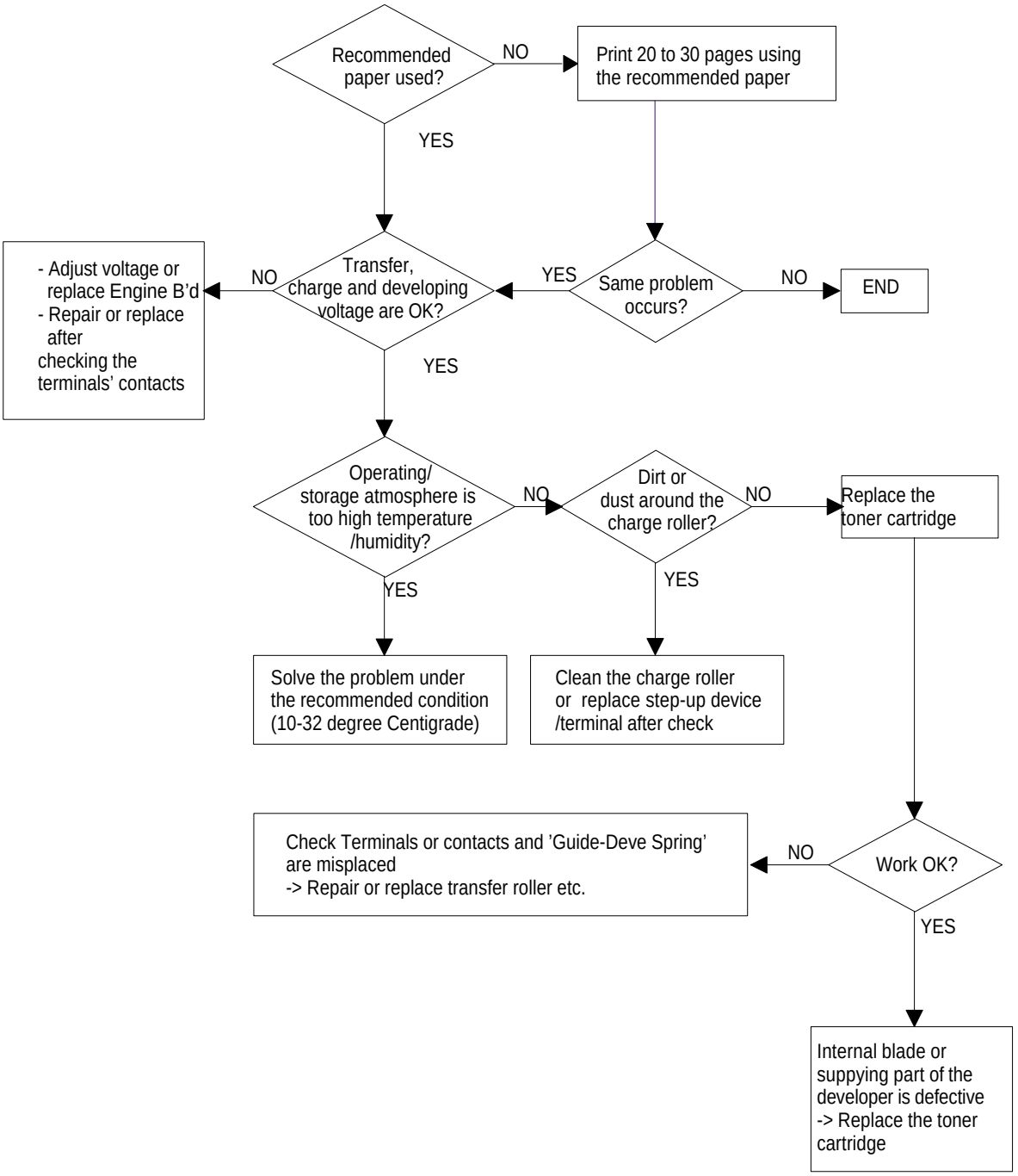
Vertical White Line (Band)


White line missing definitely?
NO
YES
Check if the printout is still has the same problem even right after passed through the transfer roller
NO
YES
The ribs in fuser or toner on the roller may invoke the image problem -> Replace the fuser cover or the defective part
The image is originally black or the black part is far close to the top -> Use the pattern which has the image below bigger than 10mm from the top
Dirt of dust stuck onto the window of internal lens of LSU -> Clean it or replace LSU
Preventive obstacles through the path between OPC of developer and LSU prevent the path -> Remove the obstacles
Toner material might be stuck to blade in the developer inside and it prevents toner supply -> Replace the developer
Check both if the toner cartridge's counter is over its guaranty and amount of the toner material -> Replace the toner cartridge

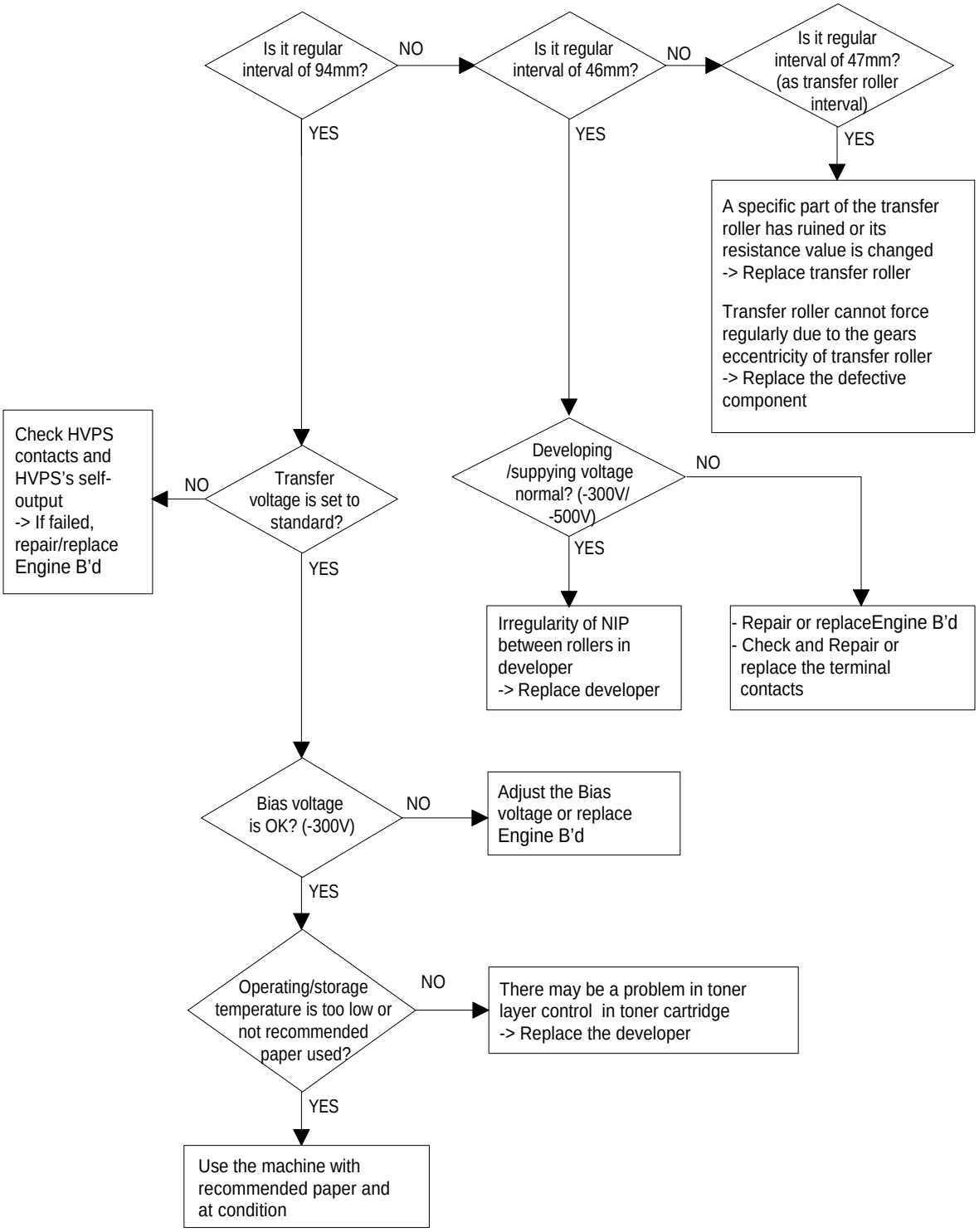
Dark Image


Dark selected via RCP?
NO
YES
Change to Normal and test
Same at Normal?
NO
END
YES
Works cor with -300V of Bias voltage?
NO
Repair or replace the defective component
YES
Works correctly after replaced LSU?
NO
Toner over supply due to the adjustment fault of metering blade in developer
-> Replace developer
YES
The power of LSU is set high or internal problem
-> Replace LSU or adjust voluem

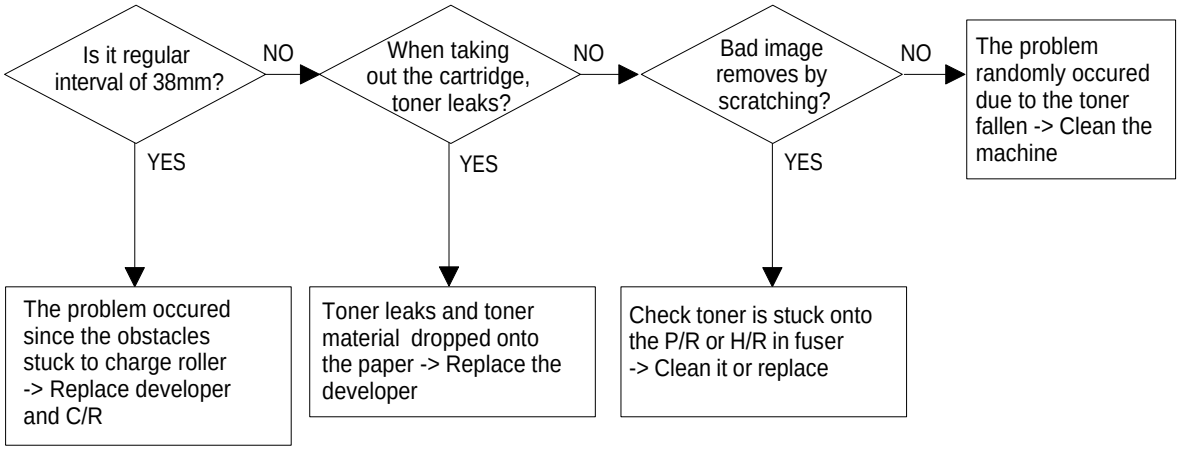
Background


Recommended paper used?
NO
Print 20 to 30 pages using the recommended paper
YES
- Adjust voltage or replace Engine B'd
- Repair or replace after checking the terminals' contacts
NO
Transfer, charge and developing voltage are OK?
YES
Same problem occurs?
NO
END
YES
Operating/ storage atmosphere is too high temperature /humidity?
NO
Dirt or dust around the charge roller?
NO
Replace the toner cartridge
YES
YES
Solve the problem under the recommended condition (10-32 degree Centigrade)
Clean the charge roller or replace step-up device /terminal after check
Check Terminals or contacts and 'Guide-Deve Spring' are misplaced
-> Repair or replace transfer roller etc.
NO
Work OK?
YES
Internal blade or suppying part of the developer is defective
-> Replace the toner cartridge

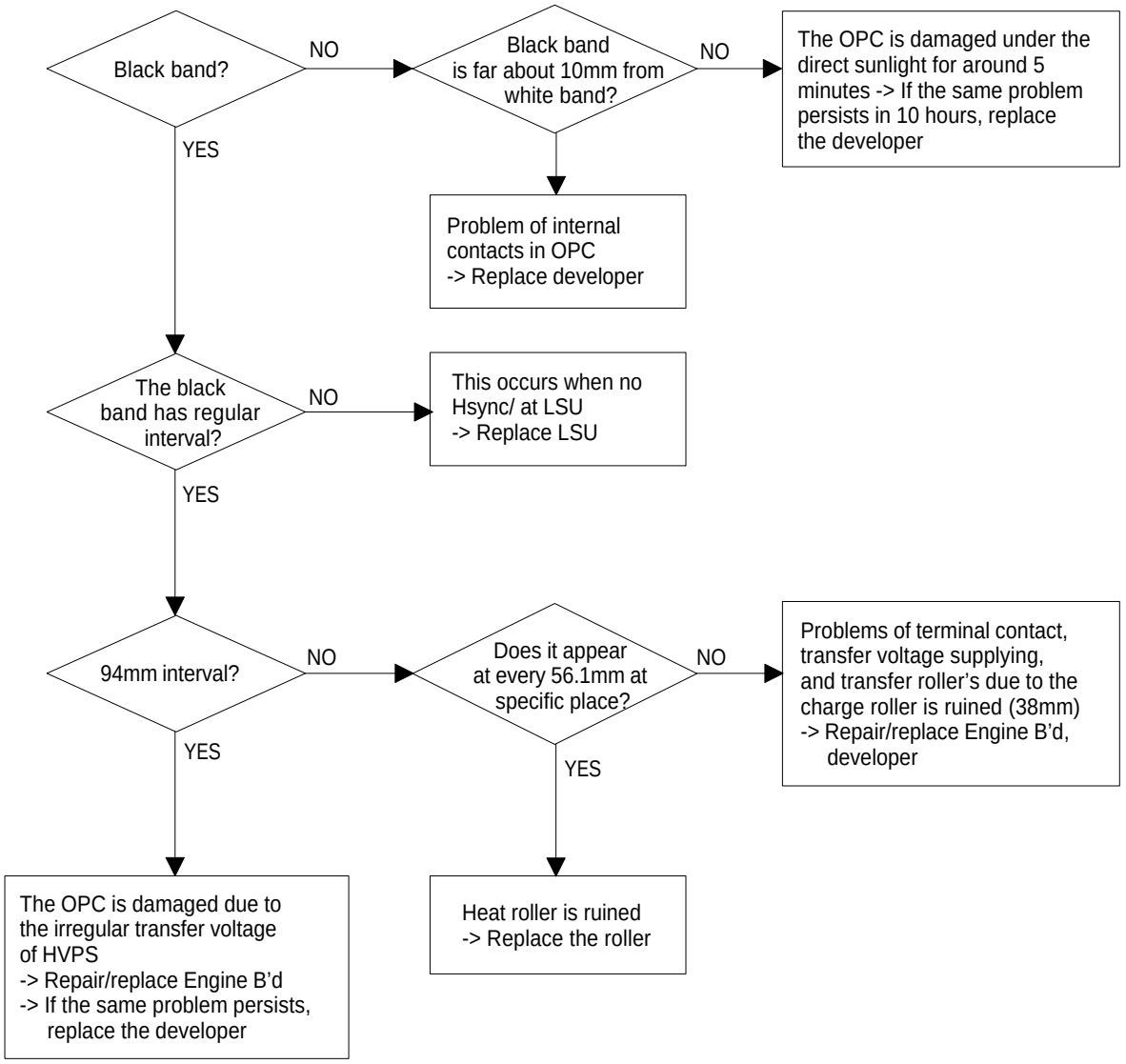
Ghost


Is it regular interval of 94mm?
NO
Is it regular interval of 46mm?
NO
Is it regular interval of 47mm? (as transfer roller interval)
YES
YES
YES
A specific part of the transfer roller has ruined or its resistance value is changed
-> Replace transfer roller
Transfer roller cannot force regularly due to the gears eccentricity of transfer roller
-> Replace the defective component
Check HVPS contacts and HVPS's self-output
-> If failed, repair/replace Engine B'd
NO
Transfer voltage is set to standard?
YES
Developing /suppying voltage normal? (-300V/ -500V)
NO
YES
Irregularity of NIP between rollers in developer
-> Replace developer
- Repair or replaceEngine B'd
- Check and Repair or replace the terminal contacts
Bias voltage is OK? (-300V)
NO
Adjust the Bias voltage or replace Engine B'd
YES
Operating/storage temperature is too low or not recommended paper used?
NO
There may be a problem in toner layer control in toner cartridge
-> Replace the developer
YES
Use the machine with recommended paper and at condition

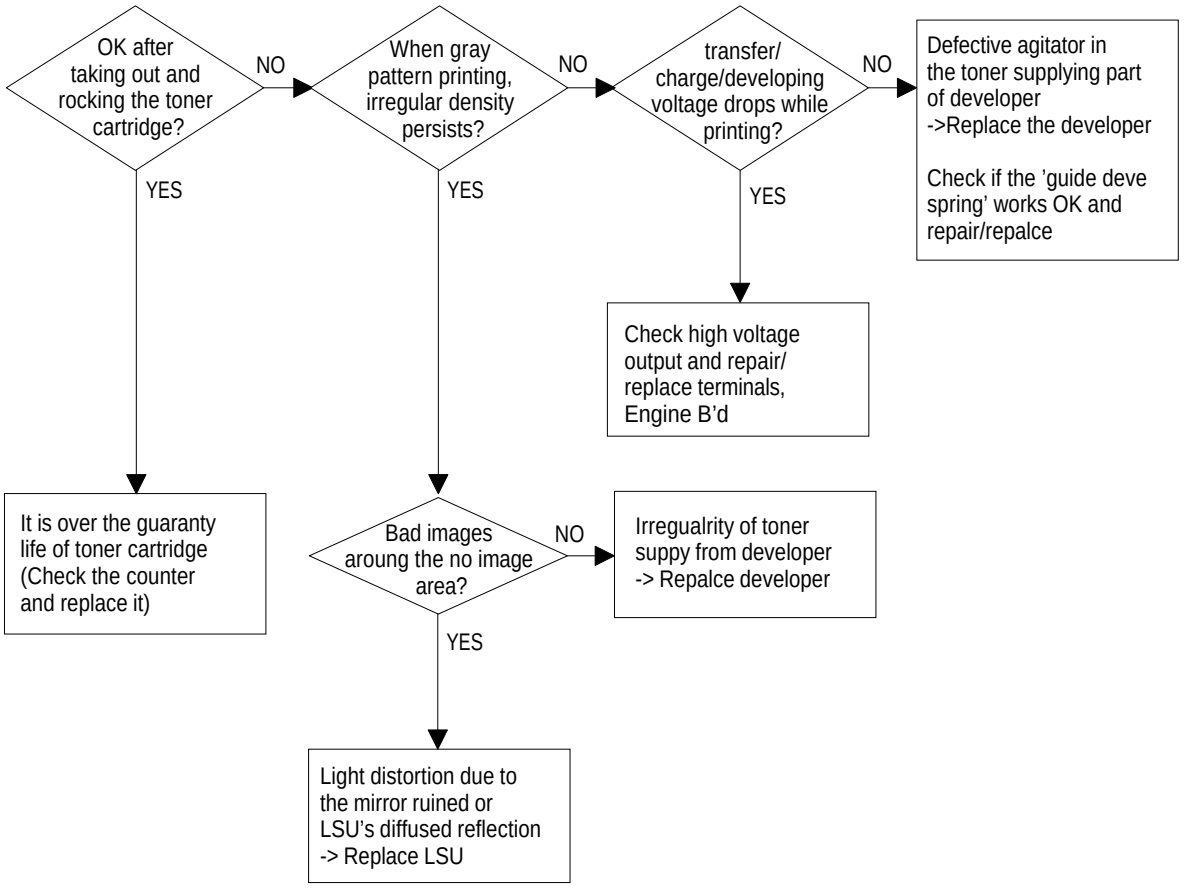
Black Dot


Is it regular interval of 38mm?
NO
When taking out the cartridge, toner leaks?
NO
Bad image removes by scratching?
NO
The problem randomly occured due to the toner fallen -> Clean the machine
YES
YES
YES
The problem occured since the obstacles stuck to charge roller -> Replace developer and C/R
Toner leaks and toner material dropped onto the paper -> Replace the developer
Check toner is stuck onto the P/R or H/R in fuser -> Clean it or replace

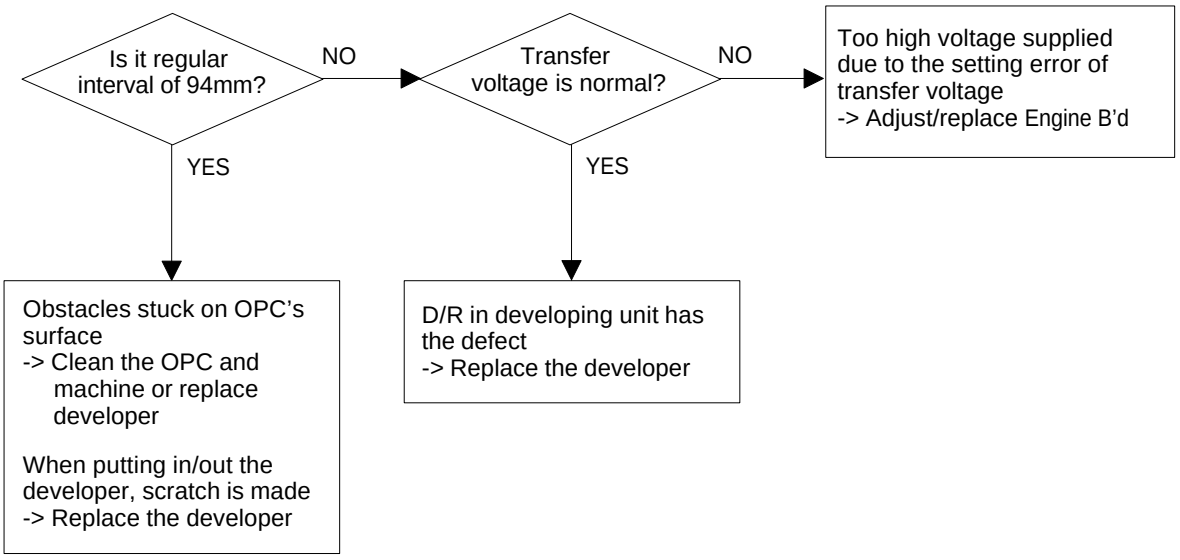
Horizontal Band


Black band?
NO
Black band is far about 10mm from white band?
NO
The OPC is damaged under the direct sunlight for around 5 minutes -> If the same problem persists in 10 hours, replace the developer
YES
Problem of internal contacts in OPC -> Replace developer
The black band has regular interval?
NO
This occurs when no Hsync/ at LSU -> Replace LSU
YES
94mm interval?
NO
Does it appear at every 56.1mm at specific place?
NO
Problems of terminal contact, transfer voltage supplying, and transfer roller's due to the charge roller is ruined (38mm) -> Repair/replace Engine B'd, developer
YES
YES
The OPC is damaged due to the irregular transfer voltage of HVPS -> Repair/replace Engine B'd -> If the same problem persists, replace the developer
Heat roller is ruined -> Replace the roller

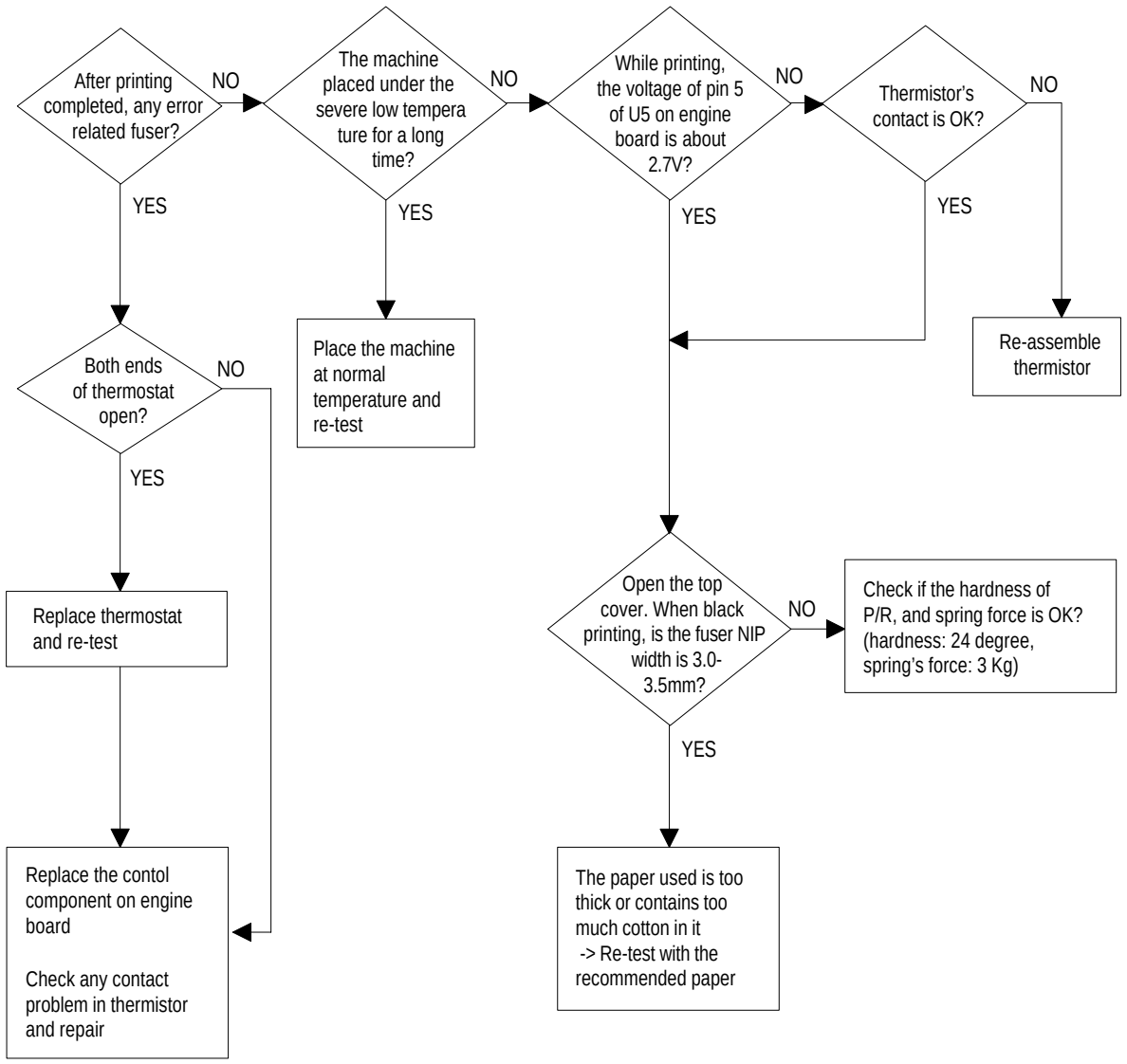
Irregular Density


OK after taking out and rocking the toner cartridge?
NO
When gray pattern printing, irregular density persists?
NO
transfer/ charge/developing voltage drops while printing?
NO
Defective agitator in the toner supplying part of developer
->Replace the developer
Check if the 'guide deve spring' works OK and repair/repalce
YES
YES
YES
Check high voltage output and repair/ replace terminals, Engine B'd
It is over the guaranty life of toner cartridge (Check the counter and replace it)
Bad images aroung the no image area?
NO
Irregualrity of toner suppy from developer
-> Repalce developer
YES
Light distortion due to the mirror ruined or LSU's diffused reflection
-> Replace LSU

White Spot


Is it regular interval of 94mm?
NO
Transfer voltage is normal?
NO
Too high voltage supplied due to the setting error of transfer voltage
-> Adjust/replace Engine B'd
YES
YES
Obstacles stuck on OPC's surface
-> Clean the OPC and machine or replace developer
When putting in/out the developer, scratch is made
-> Replace the developer
D/R in developing unit has the defect
-> Replace the developer

Poor Fusing Grade


After printing completed, any error related fuser?
NO
YES
The machine placed under the severe low tempera ture for a long time?
NO
YES
While printing, the voltage of pin 5 of U5 on engine board is about 2.7V?
NO
YES
Thermistor's contact is OK?
NO
YES
Re-assemble thermistor
Place the machine at normal temperature and re-test
Both ends of thermostat open?
NO
YES
Replace thermostat and re-test
Replace the contol component on engine board
Check any contact problem in thermistor and repair
Open the top cover. When black printing, is the fuser NIP width is 3.0-3.5mm?
NO
YES
Check if the hardness of P/R, and spring force is OK? (hardness: 24 degree, spring's force: 3 Kg)
The paper used is too thick or contains too much cotton in it
-> Re-test with the recommended paper

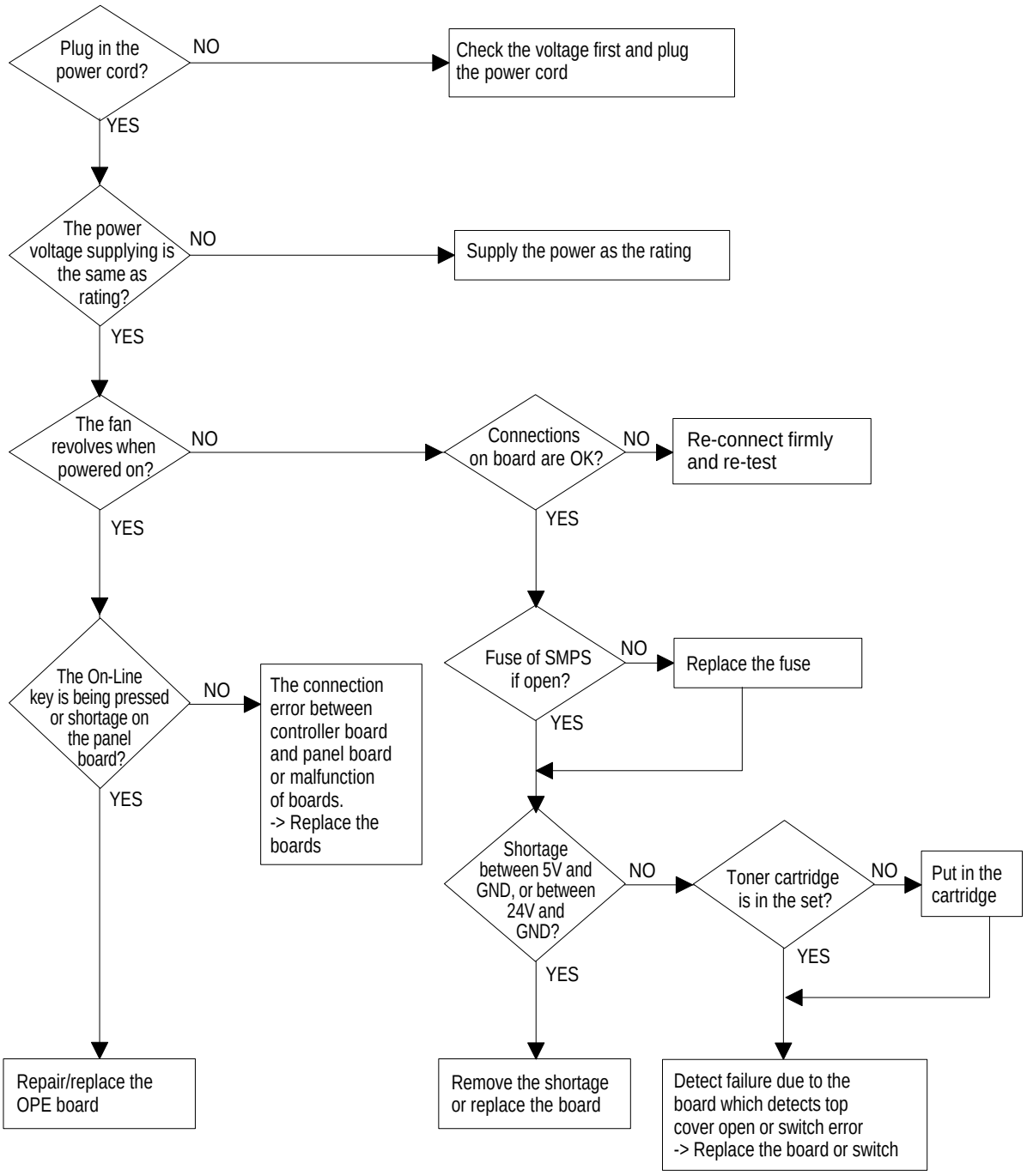
4-4 Malfunction

Error Status	Check	Solution
No power	1. Check power is supplying 2. Check fuse F1 open	1. If supplying power differs from machine's power rating, replace the machine. 2. Replace it.
Fuser Error	1. Thermostat open 2. AC wire open 3. Thermistor wire open 4. Engine Controller	1. Detach AC connector and measure the resistane between pin 1 and 2. If it is megohm, thermostat is open, Replace it. 2. Check bad connector contact or wire is cut. 3. Check thermistor wire and its connection. 4. Replace Engine board
Cover open	1. When close Top cover, check the lever is pressed 2. Micro switch's contact 3. CPU and related circuit	1. Open top cover and press the lever with pen. If Controller detects cover close, there is some mechanical trouble in top cover and lever's assembly. If not so there is electrical problem.
Jam 0	Check where Jam 0 happens 1. Paper is not picked up 2. Paper is located in feed sensor 3. Happened when inserting specific papers such as envelope into the MPF (Multipurpose Paper Feeder)? 4. Happened when inserting specific papers such as envelope into the Manual Feeder? 5. Is the Stacker Extender is folded out? 6. Does not the Guide Adjust distort the papers	1. Check whether solenoid is working or not by using Engine test mode #0 (Acoustic judgement) 2. Check feed sensor malfunction. Check if it is misplaced with paper width sensor. 3. Re-try inserting a fewer papers. •fan the papers and align •take out the loaded papers and insert them reverse direction 4. Take out the loaded papers and insert them reverse direction •inserted papers as recommended for Manual Feeding? •When loading, tap the papers until paper detect sensor senses loading 5. When using long papers, use the Stacker Extender 6. Adjust Guide to fit the paper width
Jam 1	Paper is stopped in just after of fuser unit.	1. It is mostly resulted from double feeding. Check paper is well stocked in feeder. 2. Check feed actuator position and actuator's operating. There may be stiff movind or double reflection. If not so, check the operation of feed sensor by Engine test mode #2. 3. Check exit lever operation. Remore jam and check actuator moving by hand. If actuator is too stiff, paper is wrapped around the heat roller. Remove obstacles or replace.

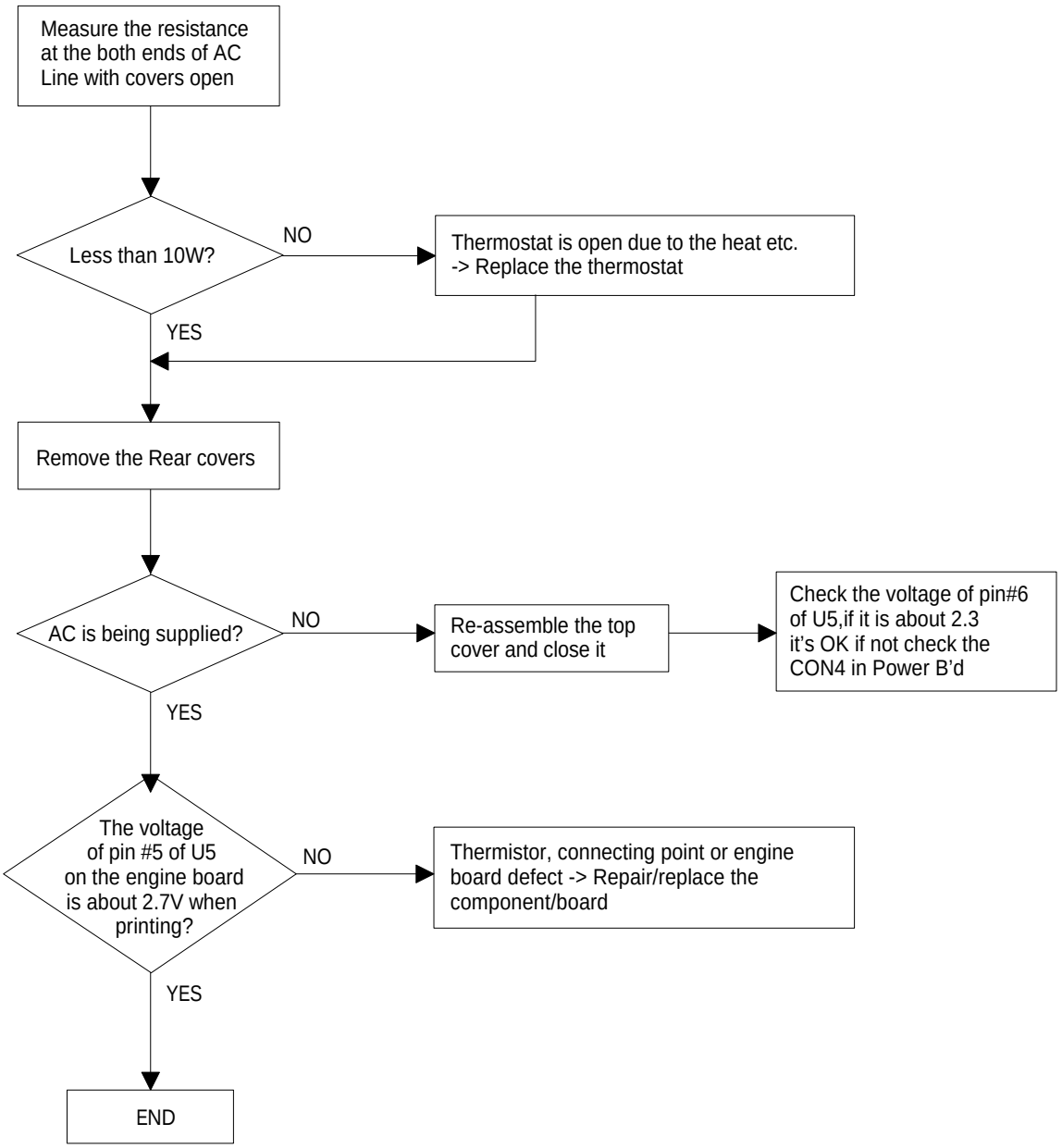
Error Status	Check	Solution
Jam 2	Check where Jam 2 happens 1. Paper is curled and cannot exit. 2. Paper is curled in the exit cover?.	1. Remove paper using pinset or some tool and watch if separate claws have any trouble. Clean around fuser. 2. Check locking works wells. Watch whether the ribs of exit cover hace any burr or resisitive edge. If they do, remove obstacles or replace.
Jam 2 at face-up tray	1. Tried to print and stack pages which are not allowed for specific paper type? 2. Does the too thin paper, which passed through the fuser, touch the Cover Fornt?	1. When using the thick paper such as envelope, card stock, label and OHP, one-sheet printing is recommended 2. To use thin paper, face-down is recommended
Clutch error	1. Check the spring of solenoid 2. Check the armature assembly/cushion 3. Electrical check	1. Check whether the spring is expanded or not. 2. Check armature is well installed. It may be unstable assemble.
High voltage error	1. Check the terminal output voltage 2. Check HVPS	1. Remove the Toner cartridge and open the cover and press cover open switch lever and measure the voltage with high voltage probe and sending printing data. If the voltage is normal, change the toner cartridge. 2. Check HV of in Engine B'd and change it.
Feeding obstacles	1. Does the black film in MPF prevent the paper loading? 2. Does the Plate-knockup prevent the paper loading?	1. Re-insert the film neatly into the front. When inserting it, the Plate-knockup needs to be aligned to the front. 2. Turn the power off and on. Open and close the Top cover to return to the original state.
Skew	Is the Guide adjust set to the paper width?	Fit the paper width using the Guide adjust.

Error Status	Check	Solution
Stacking	1. Took out the Stacker extender to support long papers? 2. Stacked too many papers more than Stacker can hold? 3. Face-up stacker does not neatly stack the papers and stack not in order.	1. Use extender as per the paper length. 2. The Face-up stacker normally can hold 150 pages when using 75g/m^2, however, stacking capacity can be lowered depending on the type of papers.
Engine Error	1. Check CBF Harness-5P/6P. (HVPS B'D to LSU) 2. Check CBF Harness-24P. (ENGINE B'D to HVPS B'D) 3. Check CBF Harness-20P. (ENGINE B'D to JOINT B'D)	Refer to troubleshooting "ENGINE ERROR".

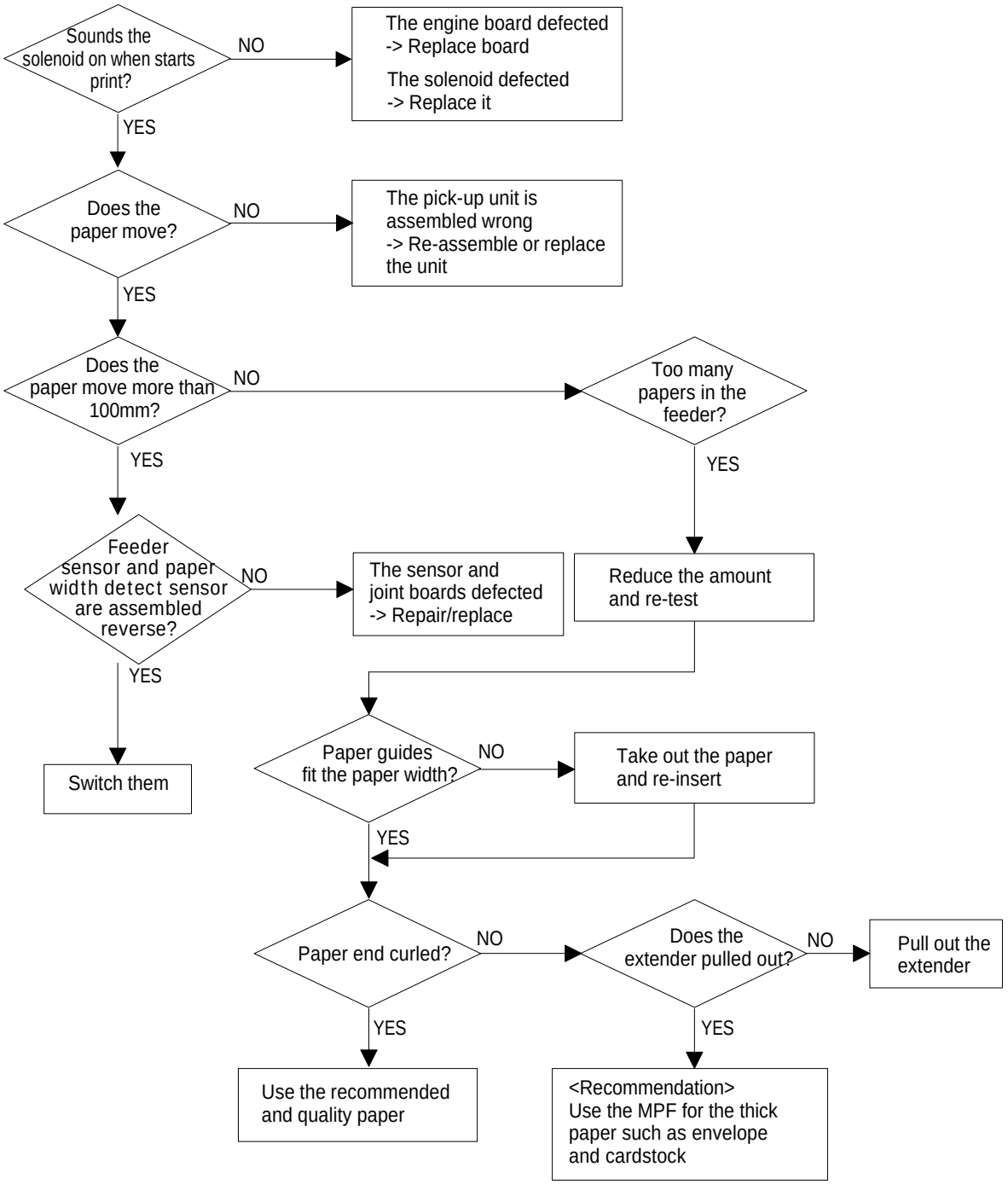
No Power (LCD NO display)


Plug in the power cord?
NO
Check the voltage first and plug the power cord
YES
The power voltage supplying is the same as rating?
NO
Supply the power as the rating
YES
The fan revolves when powered on?
NO
Connections on board are OK?
NO
Re-connect firmly and re-test
YES
YES
The On-Line key is being pressed or shortage on the panel board?
NO
The connection error between controller board and panel board or malfunction of boards.
-> Replace the boards
Fuse of SMPS if open?
NO
Replace the fuse
YES
YES
Shortage between 5V and GND, or between 24V and GND?
NO
Toner cartridge is in the set?
NO
Put in the cartridge
YES
YES
Repair/replace the OPE board
Remove the shortage or replace the board
Detect failure due to the board which detects top cover open or switch error
-> Replace the board or switch

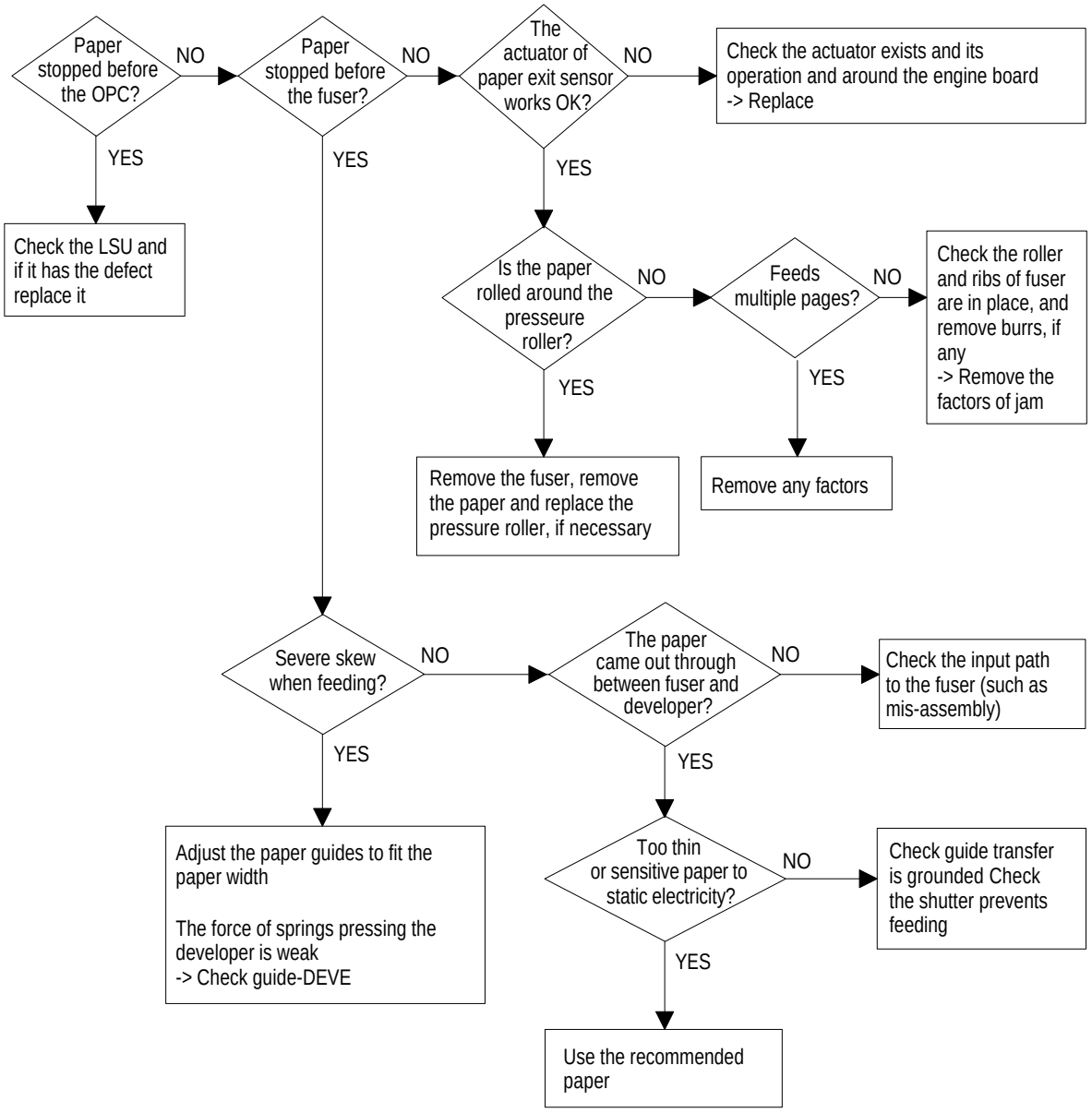
Fuser Error


Measure the resistance at the both ends of AC Line with covers open
Less than 10W?
NO
Thermostat is open due to the heat etc. -> Replace the thermostat
YES
Remove the Rear covers
AC is being supplied?
NO
Re-assemble the top cover and close it
Check the voltage of pin#6 of U5,if it is about 2.3 it's OK if not check the CON4 in Power B'd
YES
The voltage of pin #5 of U5 on the engine board is about 2.7V when printing?
NO
Thermistor, connecting point or engine board defect -> Repair/replace the component/board
YES
END

Paper Jam (Mis-feeding)



Paper Jam (Jam1)


Paper stopped before the OPC?
NO
Paper stopped before the fuser?
NO
The actuator of paper exit sensor works OK?
NO
Check the actuator exists and its operation and around the engine board
-> Replace
YES
YES
YES
Check the LSU and if it has the defect replace it
Is the paper rolled around the presseure roller?
NO
Feeds multiple pages?
NO
Check the roller and ribs of fuser are in place, and remove burrs, if any
-> Remove the factors of jam
YES
YES
Remove the fuser, remove the paper and replace the pressure roller, if necessary
Remove any factors
Severe skew when feeding?
NO
The paper came out through between fuser and developer?
NO
Check the input path to the fuser (such as mis-assembly)
YES
YES
Adjust the paper guides to fit the paper width
The force of springs pressing the developer is weak
-> Check guide-DEVE
Too thin or sensitive paper to static electricity?
NO
Check guide transfer is grounded Check the shutter prevents feeding
YES
Use the recommended paper

5. Exploded Views and Parts List

The material codes mentioned in the manual are subject to change without prior notice.
For the latest exact information, see ITSELF SYSTEM. **(http://itself.sec.samsung.co.kr)**

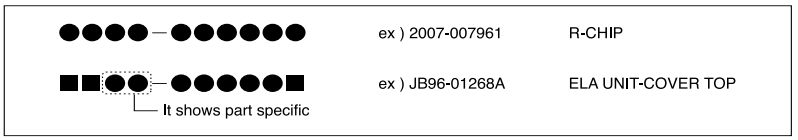
5-1. Main Assembly .....page(5-2)
5-2. Top Assembly .....page(5-4)
5-3. OPE Unit Assembly .....page(5-6)
5-4. Frame Assembly .....page(5-8)
5-5. Fuser Assembly .....page(5-10)
5-6. TX Unit Assembly .....page(5-12)
5-7. Pick Up Assembly .....page(5-14)
5-8. Motor Assembly .....page(5-16)
5-9. PCU Assembly .....page(5-17)
5-10. Cassette Assembly .....page(5-18)
5-11. Second Cassette Frame Assembly .....page(5-20)

- Deal drawings and service parts are declared for the items with higher rate of inferiority and replaceable in the level of service description only.
- If inferiority occurs, you can replace the parts by the unit declared in deal drawings and service items.

Way to observe Part Code & Description

Part code and Description is quoted and controlled by determined standard. Refer to this determined standard, it will help with ordering Part.

• **There are two kinds of Part code inscription type.**



(● : figure, ■ : character (alphabet))

Type 1 : Controlled by Company : It can be commonly used for all kinds of product SEC produce. Mostly, electronics Parts.

Type 2 : Controlled by Division : It is used or one produce. Mostly, Mostly, mechanical Parts.

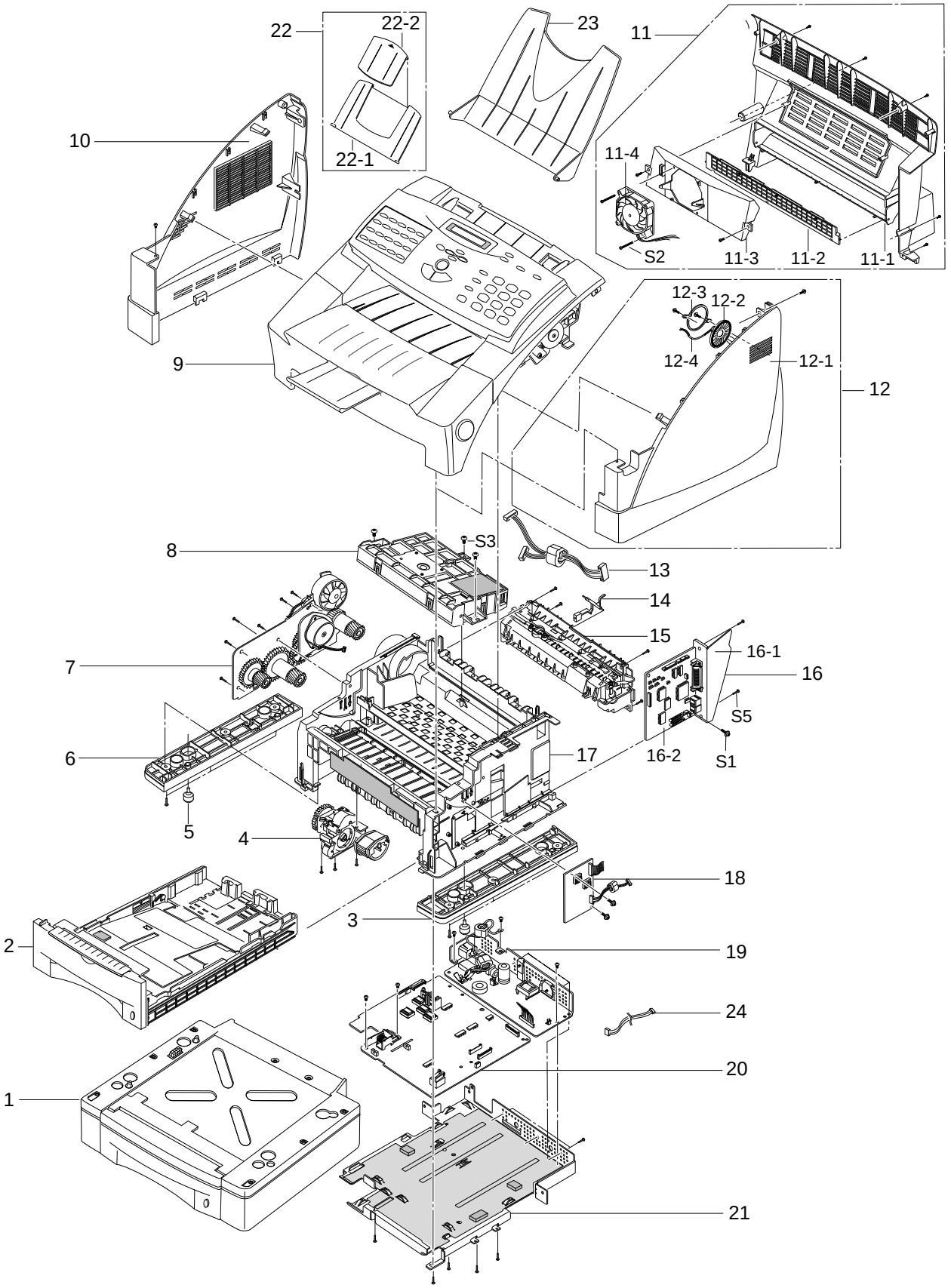
• **A/S privately used part :** It is only used for A/S .

• **Ass'y part :** Assembled by more than 2 Parts. If necessary part is not A/S Part, Ass'y part including necessary par can be used. It is shown in the diagram and drawing of SVC manual.

• Ass'y part and A/S privately used Part is distinguished by part Code and Description.
The are inscription type 2. It is recognized by Part character and front side of description.

DIVISION	PART CODE	DESCRIPTION
A/S Private	**81-****** (JB81-00039A)	AS-***** (AS-USE)
ASS'Y Part	**75-****** (JB75-00068A)	MEC-***** (MEC-CHUTE)
ASS'Y Part	**92-****** (JB92-01131A)	PBA ****** (PBA MAIN-CONTROLLER)
ASS'Y Part	**97-****** (JB97-01089A)	MEA ****** (MEA UNIT-PULLEY IDLE)

5-1 Main Assembly

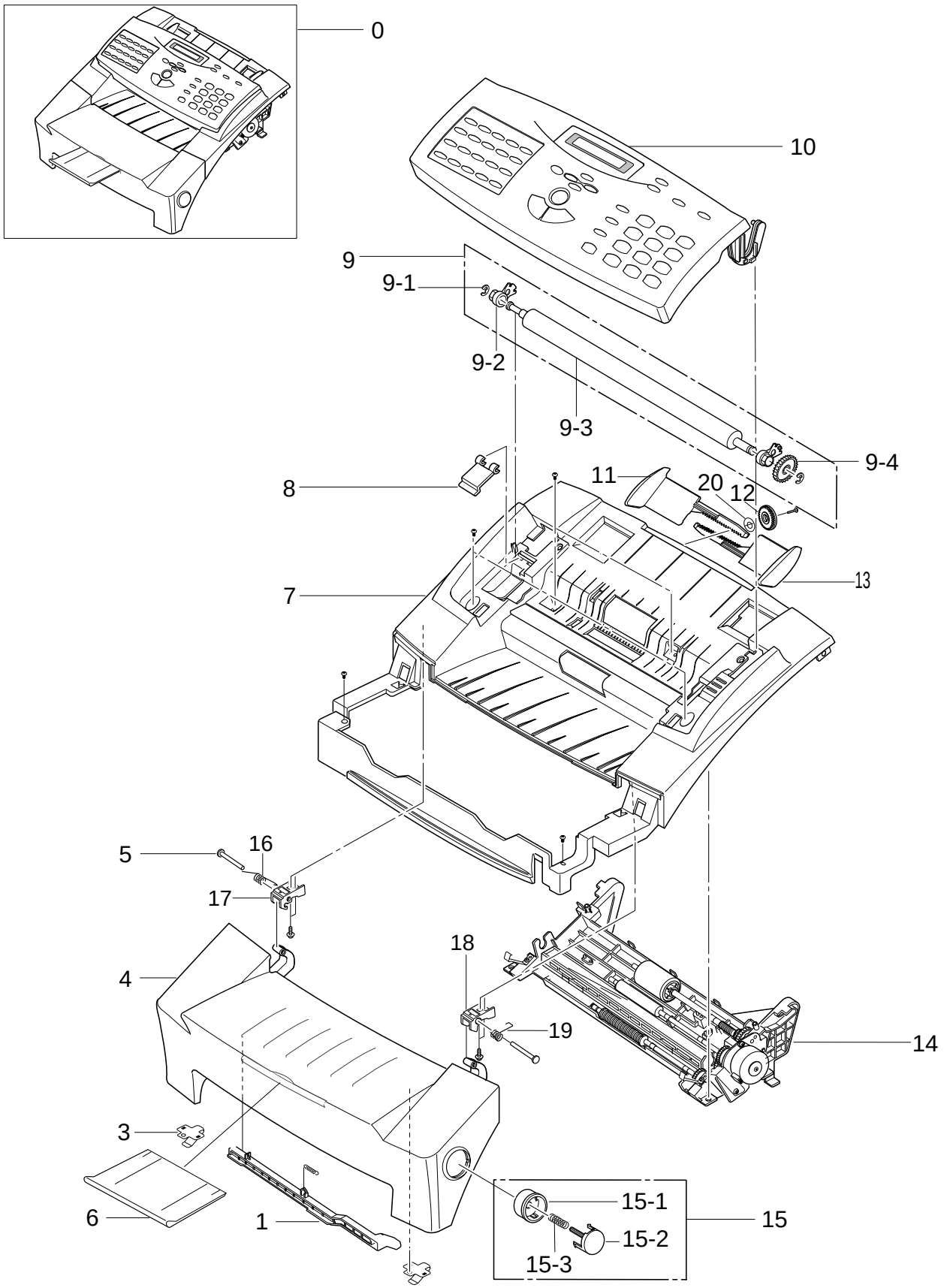


Main Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
1	ELA HOU-SCF (SF-6800)	*	1	X	Optional
	MEA UNIT-FEEDER CASSETTE	JC97-01077B	1	O	Letter
3	PMO-BRKT BOTTOM R	*	1	X	
4	MEA RACK-FEEDER	JC97-01078A	1	O	
5	FOOT-RUBBER	JC61-40001A	1	O	
6	PMO-BRKT BOTTOM L	*	1	X	
7	ELA HOU-MOTOR MAIN	JC96-01544A	1	O	
8	UNIT-LSU	JC59-10302E	1	O	
9	ELA HOU-TOP ASS'Y	JC96--01688E	1	O	
10	PMO-COVER SIDE L	*	1	X	
11	ELA HOU-COVER REAR	JC96-01494A	1	O	
11-1	PMO-COVER REAR	*	1	X	
11-2	PMO-DUMMY EXIT	*	1	X	
11-3	PMO-DUMMY FAN	*	1	X	
11-4	FAN-REAR FAN	JC31-00001B	1	O	
12	ELA HOU-COVER SIDE R	*	1	X	
12-1	PMO-COVER SIDE R	*	1	X	
12-2	SPEAKER	3001-001044	1	O	
12-3	IPR-UNIT FIXING BRAC	GB70-10500A	1	O	
12-4	CBF HARNESS-SPK-MAIN	JC39-00028A	1	O	
13	CBF-HARNESS	JC39-40006A	1	O	
14	PMO-ACTUATOR EXIT	JC72-40339A	1	O	
15	ELA HOU-FUSER	JC96-01468A	1	O	110V
16	ELA HOU-MAIN B'D ASS'Y	JC96-01689A	1	O	
16-1	IPR-BRKT MAIN	JC70-00025A	1	O	
16-2	PBA MAIN-MAIN	JC92-01240A	1	O	
17	ELA HOU-FRAME BASE	*	1	X	
18	PBA SUB-LIU	JC92-01264A	1	O	
19	SMPS-V1	JC44-00002A	1	O	110V
20	PBA SUB-ENGINE	JC92-01137A	1	O	
21	MEC-SHIELD ASS'Y	JC75-00065A	1	O	
22	MEC-CHUTE ASS'Y	JC75-00029A	1	O	
22-1	PMO-CHUTE	JC72-00092A	1	O	
22-2	PMO-CHUTE (2)	JB72-00258A	1	O	
23	PMO-STACKER RX	JC72-00091A	1	O	
24	CBF HARNESS-ENGINE ZD	JC39-00019A	1	O	
S1	SCREW-TAPTITE	*	1	X	
S2	SCREW-TAPTITE	*	2	X	
S3	SPECIAL SCREW	*	2	X	
S4	SCREW-TAPTITE	*	2	X	
S5	SCREW-MACHINE	*	2	X	

5-2 Top Assembly

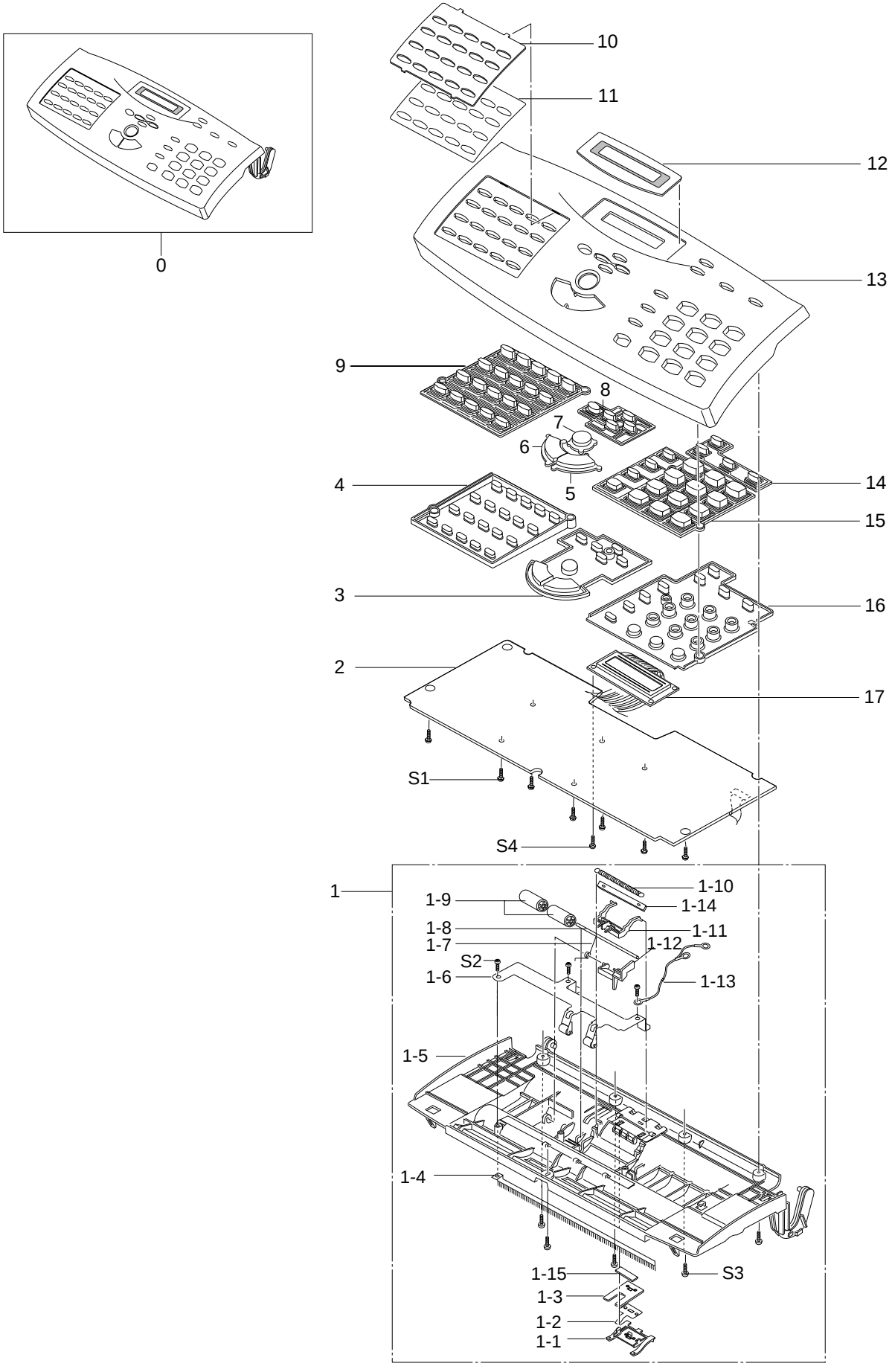


Top Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-TOP ASS'Y	JC96-01688E	1	O	
1	PMO-LEVER HOOK	JC72-40325D	1	O	
2	SPRING-ES	6107-000133	1	O	
3	IPR-PLATE SPRING DEV	JC70-10223A	2	O	
4	PMO-COVER FRONT	*	1	X	
5	IPR-SHAFT COVER OPEN	JC70-10228A	2	O	
6	PMO-STACKER SUB	*	1	X	
7	PMO-COVER MAIN	*	1	X	
8	PMO-SUPPORT OPE	*	1	X	
9	MEC-WHITE ROLLER6000	JG75-10538A	1	O	
9-1	RING-C	6044-000159	2	O	
9-2	PMO-BUSHING WHITE	JF72-41306A	2	O	
9-3	MEC-ROLLER CIS	*	1	X	
9-4	PMO-GEAR DRIVE (B4)	JG72-40740A	1	O	
10	ELA HOU-OPE ASS'Y	*	1	X	
11	PMO-GUIDE DOC L	JB72-41301E	1	O	
12	GEAR-PINION	JG66-40003A	1	O	
13	PMO-GUIDE DOC R	JB72-41300E	1	O	
14	ELA HOU-SCAN LOWER	*	1	X	
15	MEA UNIT-BUTTON C/O	*	1	X	
15-1	PMO-BUTTON C/O HOUSING	*	1	O	
15-2	PMO-BUTTON C/O	*	1	O	
15-3	SPRING ETC-OPEN, P	JC61-70975A	1	O	
16	SPRING-FRONT COVER L	*	1	X	
17	HINGE-HSG L	JC61-80200B	1	O	
18	HINGE-HSG R	JC61-80200A	1	O	
19	SPRING-FRONT COVER R	*	1	X	
20	IOR-WASHER SPRING CU	*	1	X	

5-3 OPE Unit Assembly

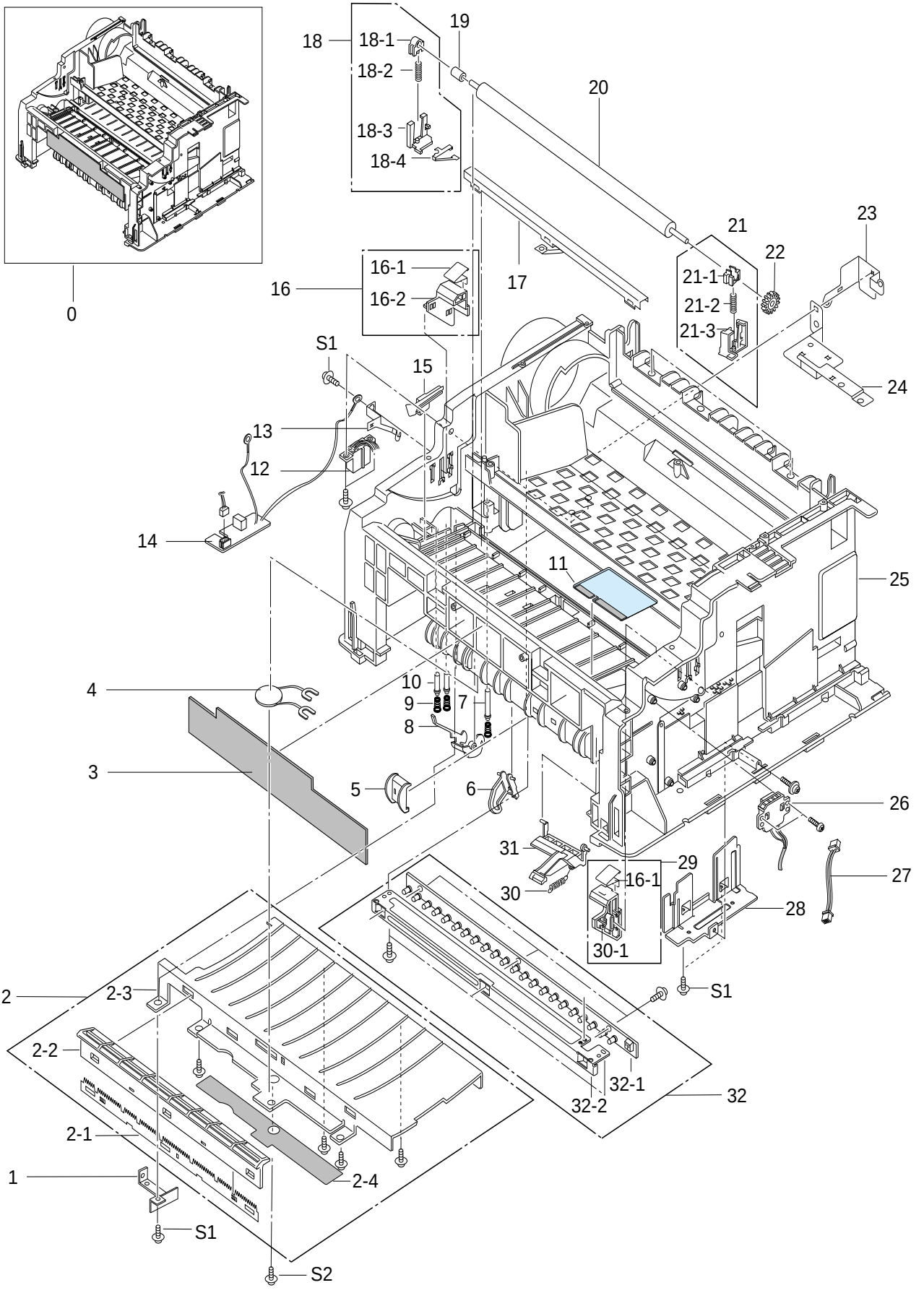


OPE Unit Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-OPE ASS'Y	*	1	X	
1	ELA HOU-SCAN UPPER	*	1	X	
1-1	PMO-HOLDER RUBBER	JG72-40044A	1	O	
1-2	PPR-SHEET ADF	JB72-10908A	1	O	
1-3	RPR-RUBBER ADF	JC73-00117A	1	O	
1-4	MEC-BRUSH ANTISTATIC	JG75-10004A	1	O	
1-5	PMO-SCAN UPPER	*	1	X	
1-6	MEC-PINCH	JG75-10015A	1	O	
1-7	SPRING ETC-LEVER SENSOR	JC61-00007A	1	O	
1-8	ICT-SHAFT PINCH	JF70-40521B	1	O	
1-9	PMO-ROLL PINCH	JG72-40663A	2	O	
1-10	ICT ETC-SPRING COIL	JC61-00040A	1	O	
1-11	PMO-SUPPORT ADF	JG72-41083A	1	O	
1-12	PMO-LEVER SENSOR	JC72-41322A	1	O	
1-13	CBF HARNESS-PINCH GND	JC39-00026A	1	O	
1-14	RPR-SPONGE SDF	*	1	X	
1-15	MPR-TAPE ADF	*	1	X	
2	PBA SUB-OPE	JC81-00279A	1	O	
3	RMO-RUBBER SCROLL	*	1	X	
4	RMO-RUBBER ONETOUCH	*	1	X	
5	PMO-KEY START	*	1	X	
6	PMO-KEY COPY	*	1	X	
7	PMO-KEY STOP	*	1	X	
8	PMO-KEY SCROLL	*	1	X	
9	PMO-KEY ONETOUCH	*	1	X	
10	MPR-COVER ADDRESS	*	1	X	
11	MPR-PAPER ADDRESS(+)	JC74-00004F	1	O	
12	PCT-WINDOW LCD	*	1	X	
13	PMO-COVER OPE	JC72--00095A	1	O	
14	PMO-KEY MODE	*	1	X	
15	PMO-KEY TEL	*	1	X	
16	RMO-RUBBER TEL	*	1	X	
17	DISPLAY LCD	JG07-20001A	1	O	
S1	SCREW-TAPTITE, FOR OPE	*	7	X	
S2	SCREW-TAPTITE, FOR PINCH	*	3	X	
S3	SCREW-TAPTITE	*	5	X	
S4	SCREW-TAPTITE, FOR LCD	*	1	X	

5-4 Frame Assembly

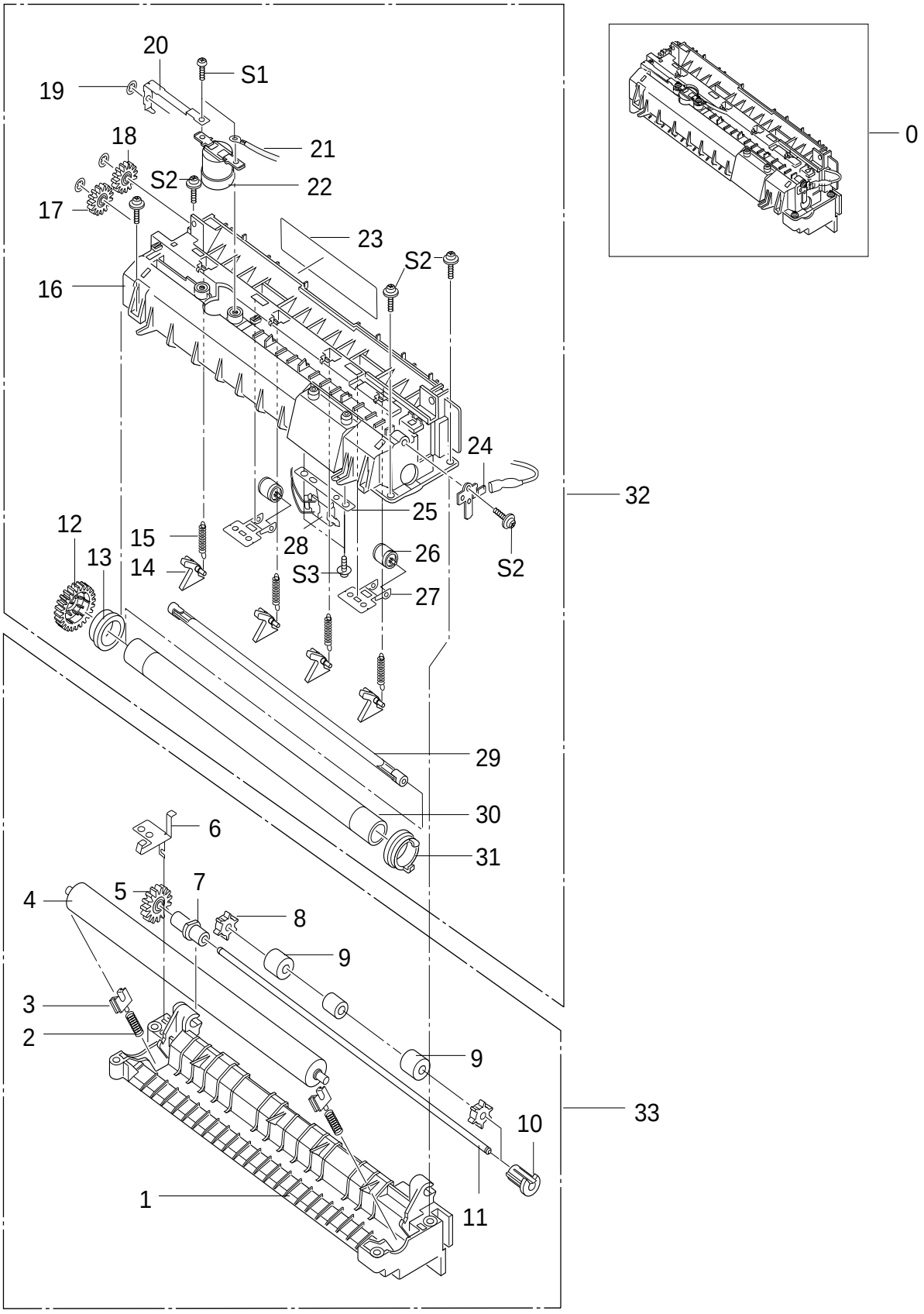


Frame Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-FRAME BASE	*	1	X	
1	IPR-GROUND PLATE MOT	JC70-10013A	1	O	
2	ELA ETC-TRANSFER, GUI	JC96-00281A	1	O	
2-1	IPR-PLATE SAW	JC70-10232A	1	O	
2-2	PMO-HOLDER SAW PLATE	JC72-40247A	1	O	
2-3	IPR-GUIDE TRANSFER	JC70-10220A	1	O	
2-4	PPR-FILM INSULATOR G	JC72-10002A	1	O	
3	PMO-SHEET, COVER OPC	JC72-40909A	1	O	
4	VARISTOR	1405-000152	1	O	
5	PMO-PMO GUIDE SKEW	JC72-40369A	1	O	
6	PMO-ACTUATOR EMPTY.	JC72-40225A	1	O	
7	CONNECTOR-TERMINAL	3712-000166	1	O	
8	PMO-ACTUATOR FEED	JC72-40226A	1	O	
9	SPRING-CS	6107-000104	3	O	
10	CONNECTOR-TERMINAL	3712-000165	2	O	
11	PCT-FILM PATH	JC72-00066A	1	O	
12	CBF HARNESS-SECOND	JC39-00035A	1	O	
13	IPR-GND OPC	JC70-10217A	1	O	
14	ELA-UNIT ZENER BD	JC96-01023A	1	O	
15	IPR-BRKT DUST	JC70-10019A	1	O	
16	ELA HOU-DEVELOPER, GU	JC96-00290A	1	O	
16-1	SPRING-PS, G/DEV	JC61-70001A	2	O	
16-2	PMO-GUIDE DEV, L	JC72-40274A	1	O	
17	GROUND-TRANSFER PLATE	JC70-10215B	1	O	
18	MEA ETC-TRANSFER, HOL	JC97-00901A	1	O	
18-1	PMO-BUSH	JC72-40228A	1	O	
18-2	SPRING-CS	6107-000115	1	O	
18-3	BEARING-HOLDER TR	JC66-10204A	1	O	
18-4	SPRING-PLATE TR	JC61-70203A	1	O	
19	PMO-SPACER TR	JC72-40686A	1	O	
20	MEC-ROLLER TRANSFER	JC75-10916A	1	O	
21	MEC-TRANSFER HOL R	JC75-00067A	1	O	
21-1	PMO-BUSHING TR12 (R)	JC72-41060A	1	O	
21-2	SPRING-CS	JC61-00037A	1	O	
21-3	PMO-HOLDER TR R (12)	JC72-41062A	1	O	
22	GEAR-TRANSFER	JC66-40380A	1	O	
23	IPR-EARTH PLATE, FU	JC70-10911A	1	O	
24	IPR-GROU PLATE G/TR	JC70-10008A	1	O	
25	PMO-BASE FRAME2	JC72-40314B	1	O	
26	ASS'Y, SOCKET-CONTACT	JC96-70001J	1	O	
27	CBF HARNESS MAIN-LIU (5P)	JC39-00023A	1	O	
28	IPR-GROUND ICU	JC70-10006A	1	O	
29	ELA HOU-DEVELOPER,GU	JC96-00291A	1	O	
29-1	PMO-GUIDE DEV, R	JC72-40275A	1	O	
30	SPRING-CVR OPEN (12)	JC61-70964A	1	O	
31	PMO-ACTUATOR C/O	JC72-40269A	1	O	
32	ELA UNIT-ERASE LAMP	*	1	X	
32-1	PCB-QUENCH	*	1	X	
32-2	IPR-BRKT ERASE	JC70-10002A	1	O	
S1	SCREW-TAPTITE	*	10	X	
S2	SCREW-TAPTITE M3, L6	*	1	X	

5-5 Fuser Assembly

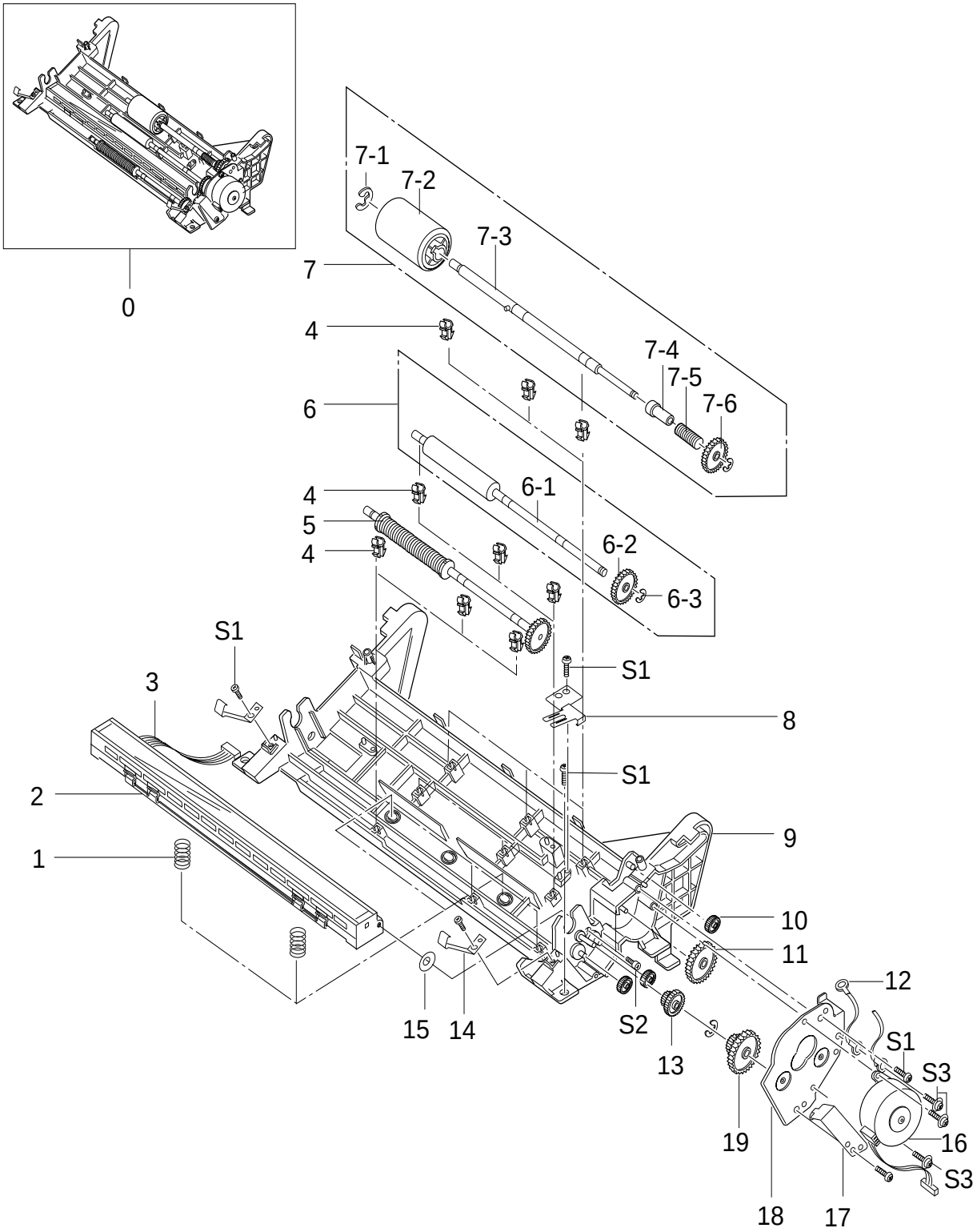


Fuser Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-FUSER	JC96-01468A	1	O	110V
1	PMO-FRAME LOWER FUSER	*	1	X	
2	SPRING-CS	*	2	X	
3	BEARING-PRESSURE R	*	2	X	
4	UNIT/PRESSURE ROLLER	*	1	X	
5	GEAR-EXIT	*	1	X	
6	IPR-GROUND PLATE, FU	*	1	X	
7	BEARING-EXIT FU L	*	1	X	
8	RMO-RUBBER EXIT K	*	2	X	
9	RMO-RUBBER EXIT	*	2	X	
10	BEARING-EXIT FU	*	1	X	
11	ICT-SHAFT EXIT	*	1	X	
12	GEAR-FUSER	*	1	X	
13	BEARING-H/R L	*	1	X	
14	PMO-GUIDE CLAW	*	4	X	
15	SPRING-ES	*	4	X	
16	PMO-FRAME UPPER FUSER	*	1	X	
17	GEAR-EXIT/U ID	*	1	X	
18	GEAR-EXIT/L ID	*	1	X	
19	RING-CS	*	3	X	
20	XPR-ELECTRODE FU L	*	1	X	
21	CBF HARNESS	JC39-40019A	1	O	110V
22	THERMOSTAT	*	1	X	
23	LABEL (R)-HOT FU	*	1	X	
24	XPR-ELECTRODE FU R	*	1	X	
25	SPRING-THERMIST	*	1	X	
26	PMO-ROLLER EXIT F/UP	JC72-40342A	2	O	
27	SPRING-PS, EXIT F/UP	*	2	X	
28	THERMISTOR-NTC	1404-000001	1	O	
29	LAMP-HALOGEN	4713-000001	1	O	110V
30	XEX-H/ROLLER	*	1	X	
31	BEARING-H/R R	*	1	X	
32	ELA-HOU-FUSER UPPER	JC96-01470A	1	O	
33	ELA-HOU-FUSER LOWER	JC96-01469A	1	O	
S1	SCREW-MACHINE	*	2	X	
S2	SCREW-TAPTITE	*	5	X	
S3	SCREW-TAPTITE	*	2	X	

5-6 TX Unit Assembly

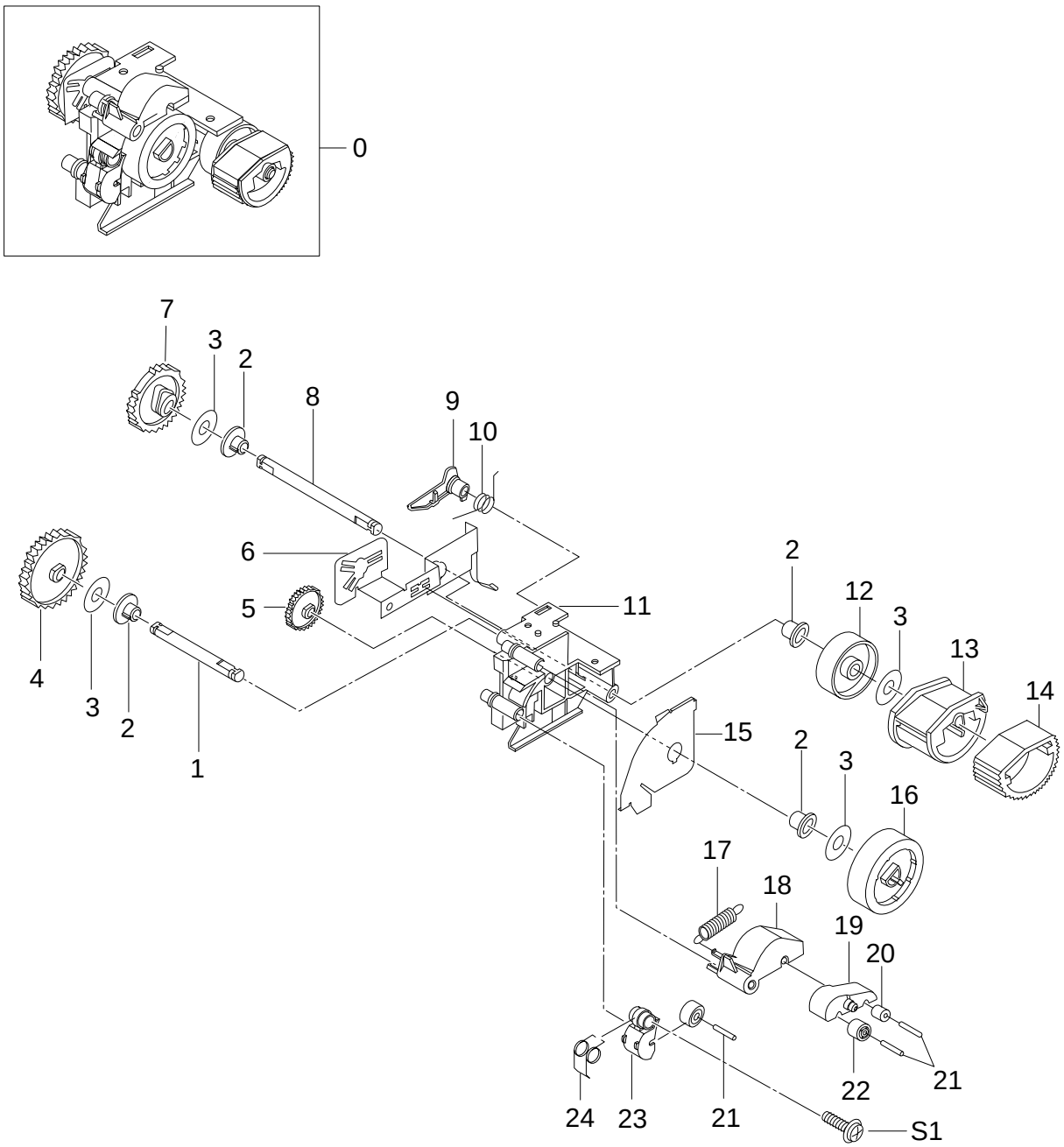


TX Unit Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-SCAN LOWER	*	1	X	
1	SPRING-CIS (CANON)	JG61-70533A	2	O	
2	CONTACT IMAGE SENSOR	0609-001103	1	O	
3	CBF HARNESS-CIS-MAIN	JC39-00025A	1	O	
4	PMO-BUSHING TX (B4)	JG72-40744A	9	O	
5	PMO-SHAFT EXIT	jg72-40042a	1	O	
6	MEC-DRIVE ROLLER	*	1	X	
6-1	MEC-ROLLER DRIVE6000	*	1	X	
6-2	PMO-GEAR DRIVE (B4)	JG72-40740A	1	O	
6-3	RING-C	6044-000159	3	O	
7	MEC ETC-ADF ROLLER	*	1	X	
7-1	RING-C	6044-000156	1	O	
7-2	MEC-ROLLER ADF	JG75-10016A	1	O	
7-3	ICT-SHAFT ADF	JG70-40547A	1	O	
7-4	PMO-BUSHING HOLDER	JG72-40732A	1	O	
7-5	ICT-SPRING CLUTCH	JG70-40534A	1	O	
7-6	PMO-GEAR ADF	JG72-40659A	1	O	
8	IPR-GROUND DRIVE	JG70-10006A	1	O	
9	PMO-SCAN LOWER	*	1	X	
10	GEAR-SPUR	JG66-40001A	3	O	
11	GEAR-IDLE4920	JG66-40040A	1	O	
12	CBF HARNESS-EARTH (CIS)	*	1	X	
13	GEAR-IDLE3315	JG66-40041A	1	O	
14	LOCKER-TX	JG64-30001A	2	O	
15	IPR-WASHER SPRING CU	JF70-10616A	1	O	
16	MOTOR-STEP	3101-001197	1	O	
17	IPR-GROUND CIS	*	1	X	
18	IPR-BRKT MOTER	jc70-11060a	1	O	
19	PMO-GEAR TRANS (B4)	JG72-40741A	1	O	
S1	SCREW-TAPTITE	*	6	X	
S2	SPECIAL SCREW	JG60-10001A	2	O	
S3	SCREW-TAPTITE	*	3	X	

5-7 Pick Up Assembly

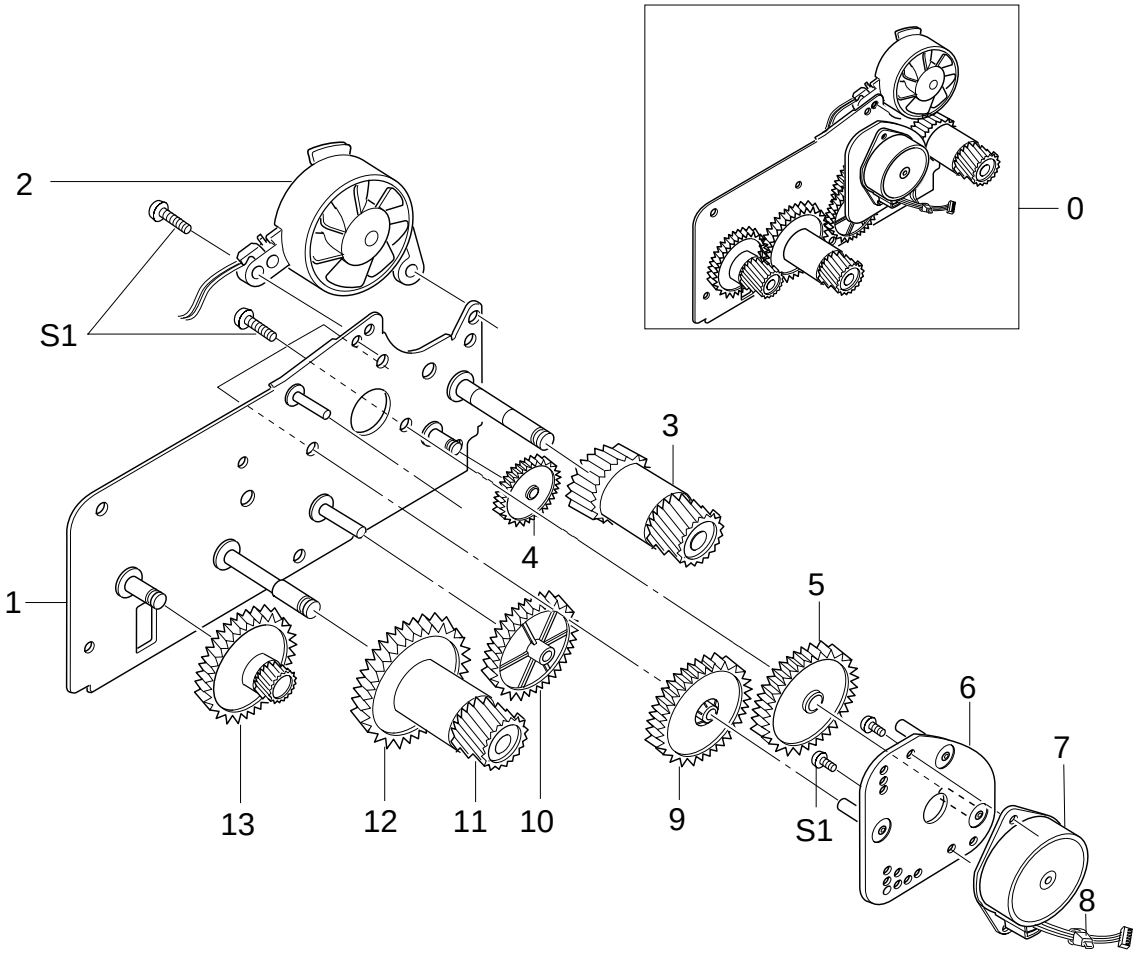


Pick Up Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA RACK-FEEDER	JC97-01078A	1	O	
1	IPR-SHAFT FEED	JC70-10229A	1	O	
2	BEARING-PICK UP	JC66-10202A	4	O	
3	WASHER-PLAIN	*	4	X	
4	GEAR-FEED	JC66-40375A	1	O	
5	GEAR-PICK UP (12)	JC66-40958A	1	O	
6	IPR-GND FEED	JC70-10991A	1	O	
7	GEAR-P/UP DRIVE	JC66-40219A	1	O	
8	IPR-SHAFT PICK UP	JC70-10231A	1	O	
9	PMO-LEVER PICK UP	JC72-41339A	1	O	
10	SPRING-PICK UP (12)	JC61-70966A	1	O	
11	PMO-FRAME FEED	*	1	X	
12	PMO-IDLE PICK UP	JC72-41234A	1	O	
13	PMO-HOUSING P/UP	JC72-40252A	1	O	
14	PMO-RUBBER PICK UP	JC73-40907A	1	O	
15	IPR-GUIDE FEED	JC70-10992A	1	O	
16	PMO-ROLL FEED, DRV 12	JC72-41295A	1	O	
17	SPRING-FEED (2)	JC61-70942A	1	O	
18	PMO-HOLDER FEED (2)	JC72-41185A	1	O	
19	PMO-SUB HOLDER FEED	JC72-40266A	1	O	
20	PMO-ROLLER FEED S	JC72-40262A	1	O	
21	IPR-SHAFT FEED IDLER	JC70-10230A	1	O	
22	PMO-ROLLER FEED L	JC72-40261A	2	O	
23	PMO-HOLDER FEED (1)	JC72-41184A	1	O	
24	SPRING-FEED (1)	JC61-70941A	1	O	
S1	SCREW-TAPTITE	6003-000002	1	O	

5-8. Motor Assembly

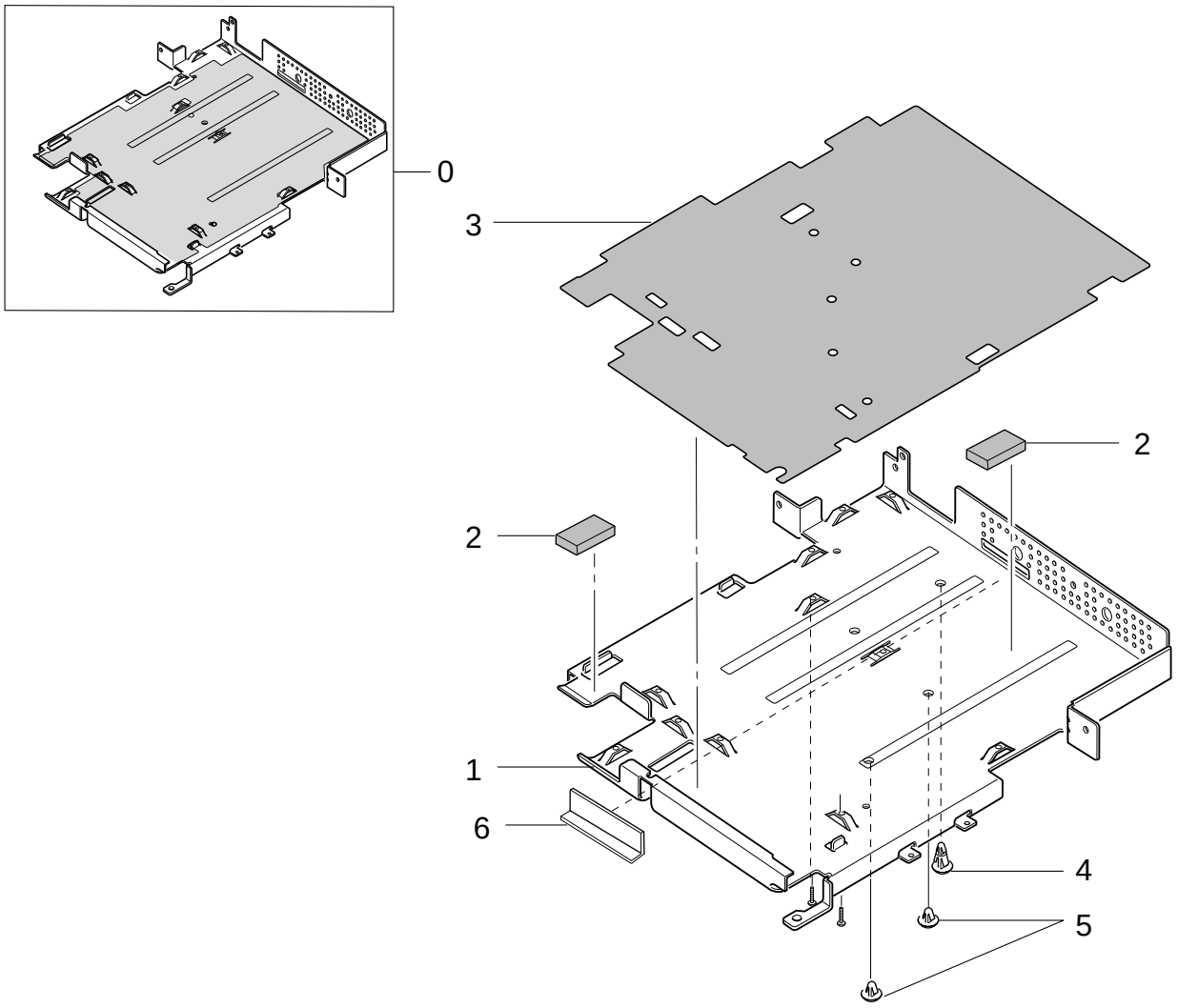


Motor Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-MOTOR MAIN	JC96-01544A	1	O	
1	IPR-BRKT GEAR	JC70-10903A	1	O	
2	FAN-MOTOR FAN	JC31-30502B	1	O	
3	GEAR-FUSER DRIVE	*	1	X	
4	GEAR-IDLE FU	*	1	X	
5	GEAR-125/18	*	1	X	
6	IPR-BRKT, MOTOR	*	1	X	
7	MOTOR-STEP	JC31-10100F	1	O	
8	CABLE TIE	6501-000115	2	O	
9	GEAR-132/25	*	1	X	
10	GEAR-IDLE OPC	*	1	X	
11	GEAR-OPC DRV2	*	1	X	
12	GEAR-OPC DRIVE	*	1	X	
13	GEAR-FEED DRV	*	1	X	
S1	SCREW-MACHINE	*	6	X	

5-9 PCU Assembly

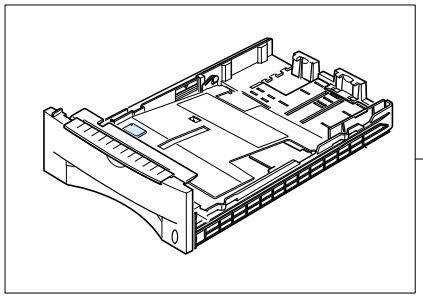


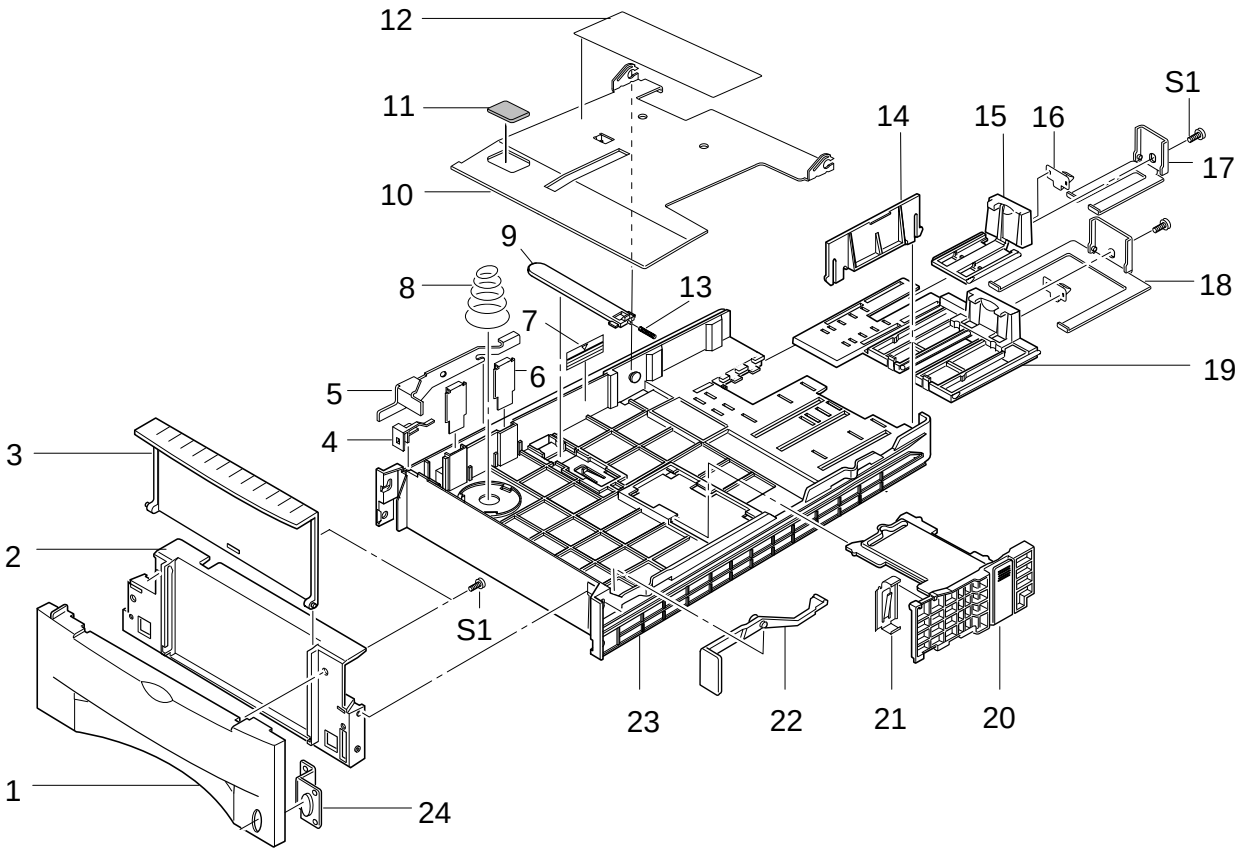
PCU Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEC-SHIELD ASS'Y	JC75-00065A	1	O	
1	XPR-SHIELD PCU	JC71-10320A	1	O	
2	RCT-FOOT PCU	JC73-30911A	2	O	
3	PPR-INSULATOR PCU	JC72-10379A	1	O	
4	SUPPORTER	*	1	X	
5	SUPPORTER	6103-001040	2	O	
6	PPR-INSULATOR IC	JC72-10901A	1	O	

5-10 Cassette Assembly



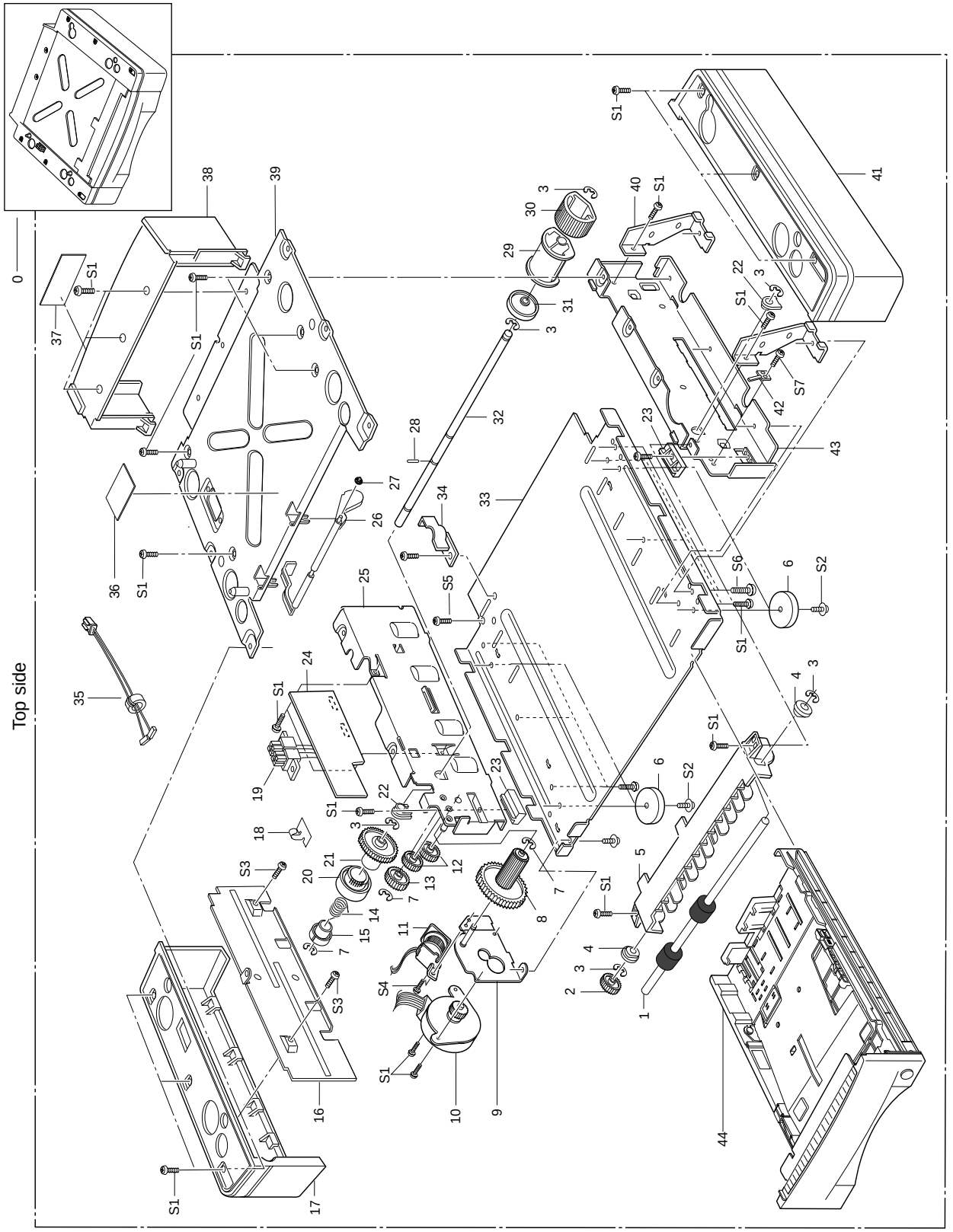


Cassette Assembly Parts List

O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA UNIT-FEEDER CASSETTE	JC97-01077B	1	O	Letter
1	PMO-GUIDE SUB CAST	JC72-41225B	1	O	
2	PCT-GUIDE CASSETTE M	*	1	X	
3	PMO-TRAY MANUAL	*	1	X	
4	PMO-HOLDER FINGER	JC72-41182A	1	O	
5	IPR-FINGER	*	1	X	
6	IPR-GUIDE PAPER	*	2	X	
7	LABEL (R)-HEIGHT	*	1	X	
8	SPRING-KNOCK UP (12)	JC61-70951A	1	O	
9	PMO-LOCKER PLATE	JC72-41210A	1	O	
10	IPR-PLT KNOCK UP (12)	JC70-11022A	1	O	
11	RPR-MMP PAD	*	1	X	
12	LABEL (R)-PLATE	*	1	X	
13	SPRING-LOCKER, PLATE	JG61-70531A	1	O	
14	PMO-GUIDE REAR	JC72-41180A	1	O	
15	PMO-GUIDE LETTER	JC72-41392A	1	O	
16	IPR-TENSION LETTER	JC70-11085A	2	O	
17	IPR-BRACKET LETTER	JC70-11087A	1	O	
18	IPR-BRACKET LEGAL	JC70-11086A	1	O	
19	PMO-GUIDE LEGAL	JC72-41393A	1	O	
20	PMO-ADJUSTER S CAST	JC72-41394A	1	O	
21	IPR-GUIDE PLATE	JC70-10993A	1	O	
22	PMO-INDICATOR EMPTY	*	1	X	
23	PMO-FRAME CASSETTE P	JC72-41382D	1	O	
24	PMO-WINDOW EMPTY	JC72-41386A	1	O	
S1	SCREW-TAPTITE	*	4	X	

5-11 Second Cassette Frame Assembly

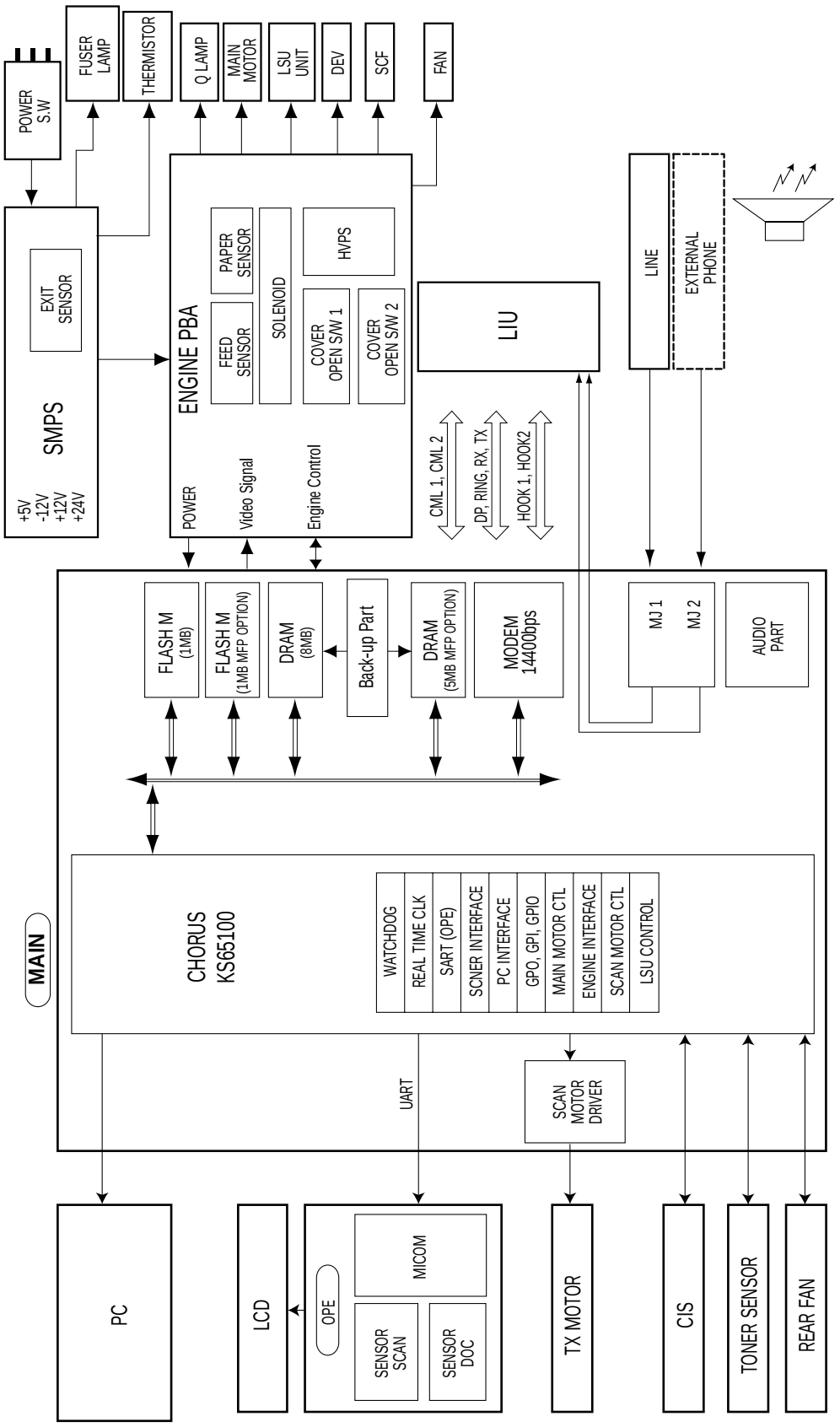


Second Cassette Frame Assembly Parts Lists

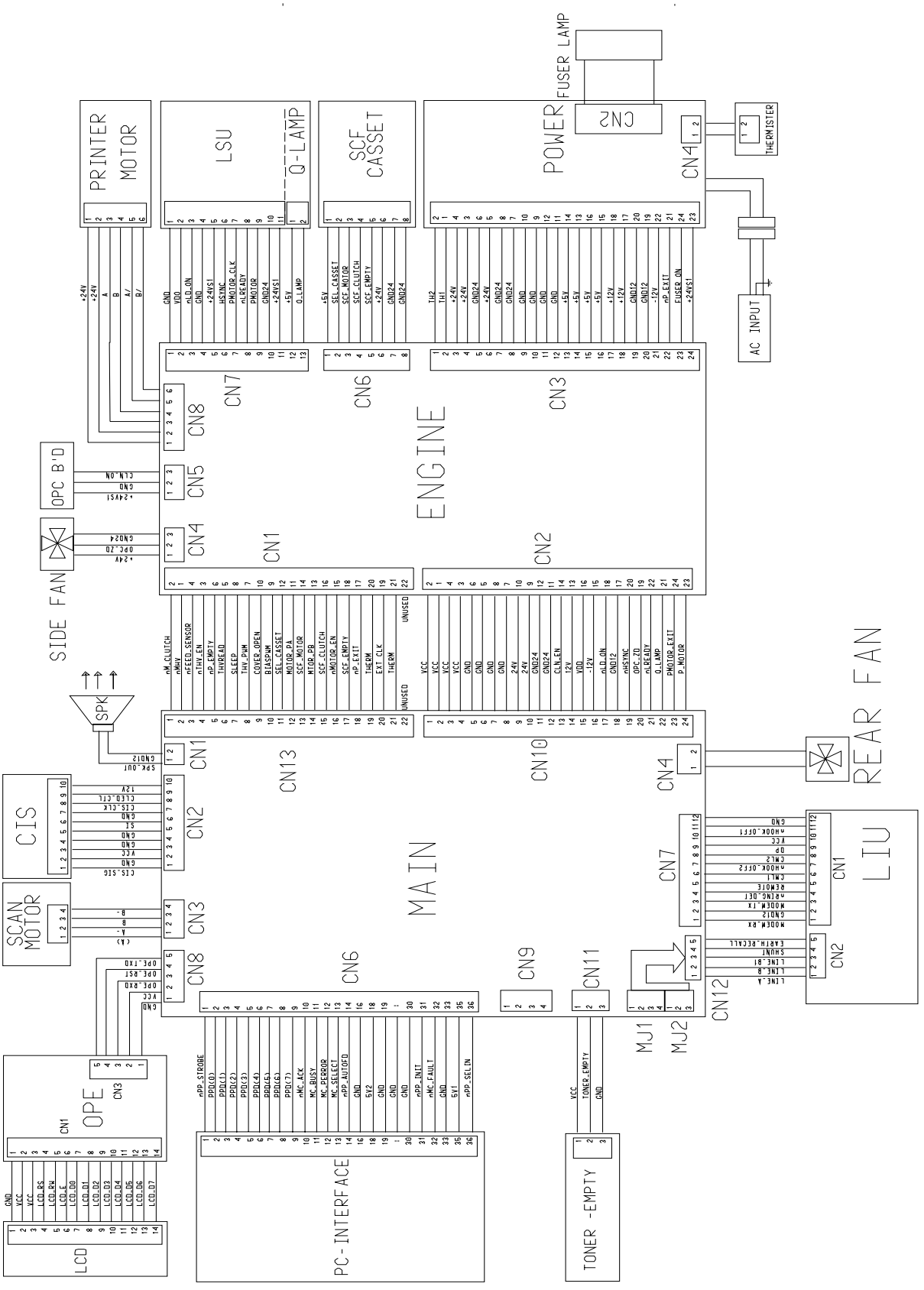
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-SCF	*	1	X	Optional
1	ROLLER-INNER UPPER	*	1	X	
2	GEAR-FEED	*	1	X	
3	E-RING	*	4	X	
4	BEARING ROLLER IDLER	*	2	X	
5	GUIDE INNER UPPER	*	1	X	
6	FOOT RUBBER	*	4	X	
7	E-RING	*	5	X	
8	GEAR DOUBLE OPTION	*	1	X	
9	BRKT MOTOR (SCF)	*	1	X	
10	STEP MOTOR	*	1	X	
11	SOLENOID-MAGNET	*	1	X	
12	GEAR IDLE Z19	*	2	X	
13	GEAR IDLER OPTION	*	1	X	
14	SPRING-TS,CLUTCH	*	1	X	
15	HUB CLUTCH	*	1	X	
16	SHIELD-PCB	*	1	X	
17	COVER-LEFT	*	1	X	
18	CABLE CLAMP	*	1	X	
19	CBF HARNESS	*	1	X	
20	COLLAR CLUTCH P1	*	1	X	
21	GEAR P/UP OPTION	*	1	X	
22	BEARING-FEED	*	2	X	
23	GUIDE RAIL	*	2	X	
24	PBA MAIN	*	1	X	
25	FRAME LEFT(SCF)	*	1	X	
26	ACTUATOR-ARM	*	1	X	
27	CS STOP RING	*	1	X	
28	PIN PARELLED,P/U	*		X	
29	HODER-HOUSING	*	1	X	
30	RUBBER P/UP	*	1	X	
31	IDLE-SCF	*	1	X	
32	SHAFT PICKUP	*	1	X	
33	FRAME LOWER	*	1	X	
34	STOPPER-SCF	*	1	X	
35	CBF HARNESS	*	1	X	
36	LABEL WARNING	*	1	X	
37	LABEL(R)-SCF(12)	*	1	X	
38	COVER-REAR	*	1	X	
39	FRAME UPPER	*	1	X	
40	BRKT SUPPORT	*	2	X	
41	COVER-RIGHT	*	1	X	
42	GROUND ROLLER	*	1	X	
43	FRAME RIGHT(SCF)	*	1	X	
44	ELA HOU-CASSETTE(SCF)	*	1	X	
S1	TAPTITE SCREW	*	23	X	
S2	TAPTITE SCREW	*	4	X	
S3	TAPTITE SCREW	*	9	X	
S4	MACHINE SCREW	*	4	X	
S5	MACHINE SCREW	*	2	X	
S6	MACHINE SCREW	*	2	X	
S7	TAPTITE SCREW	*	1	X	

6. Block Diagram

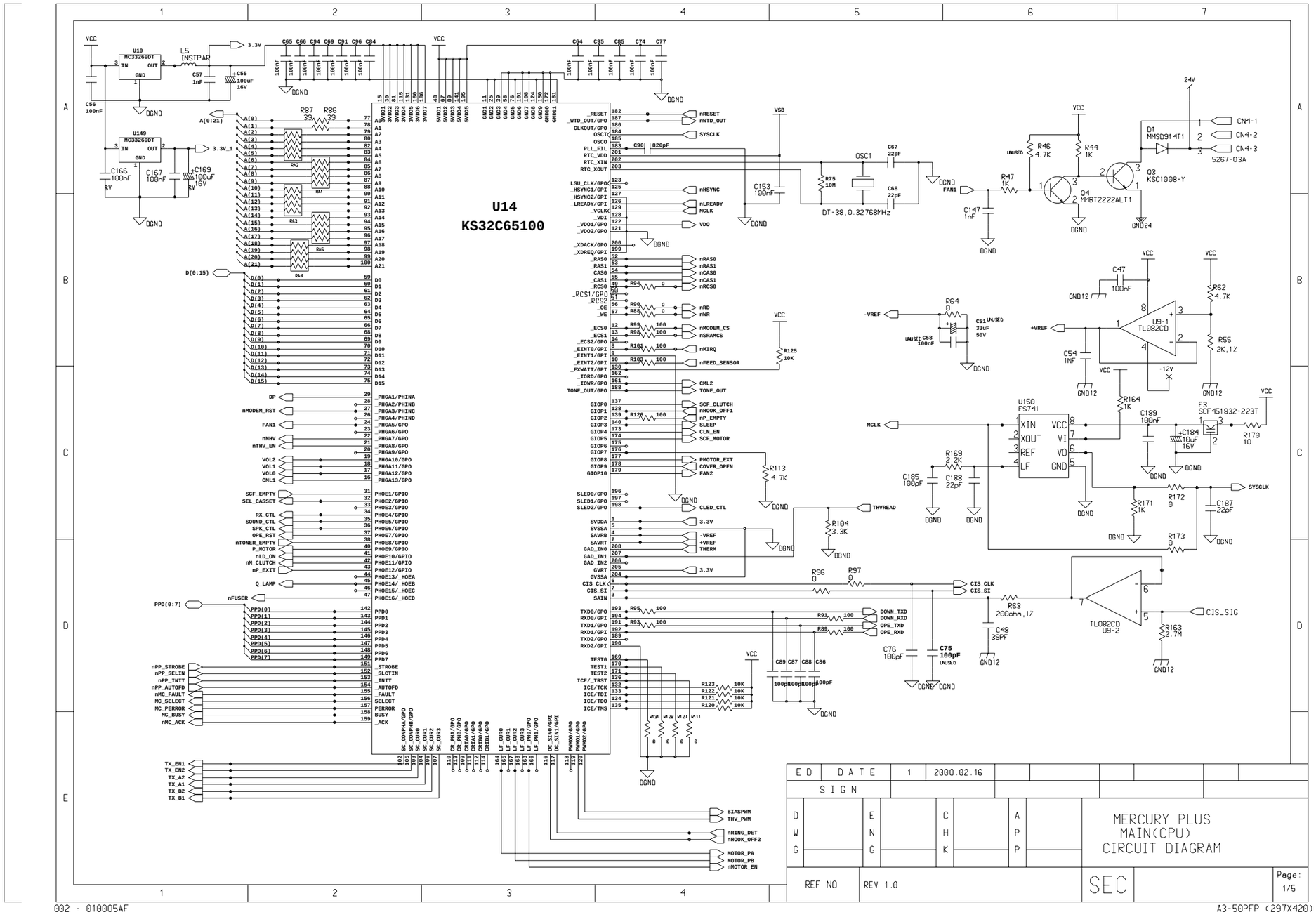


7. Connection Diagram

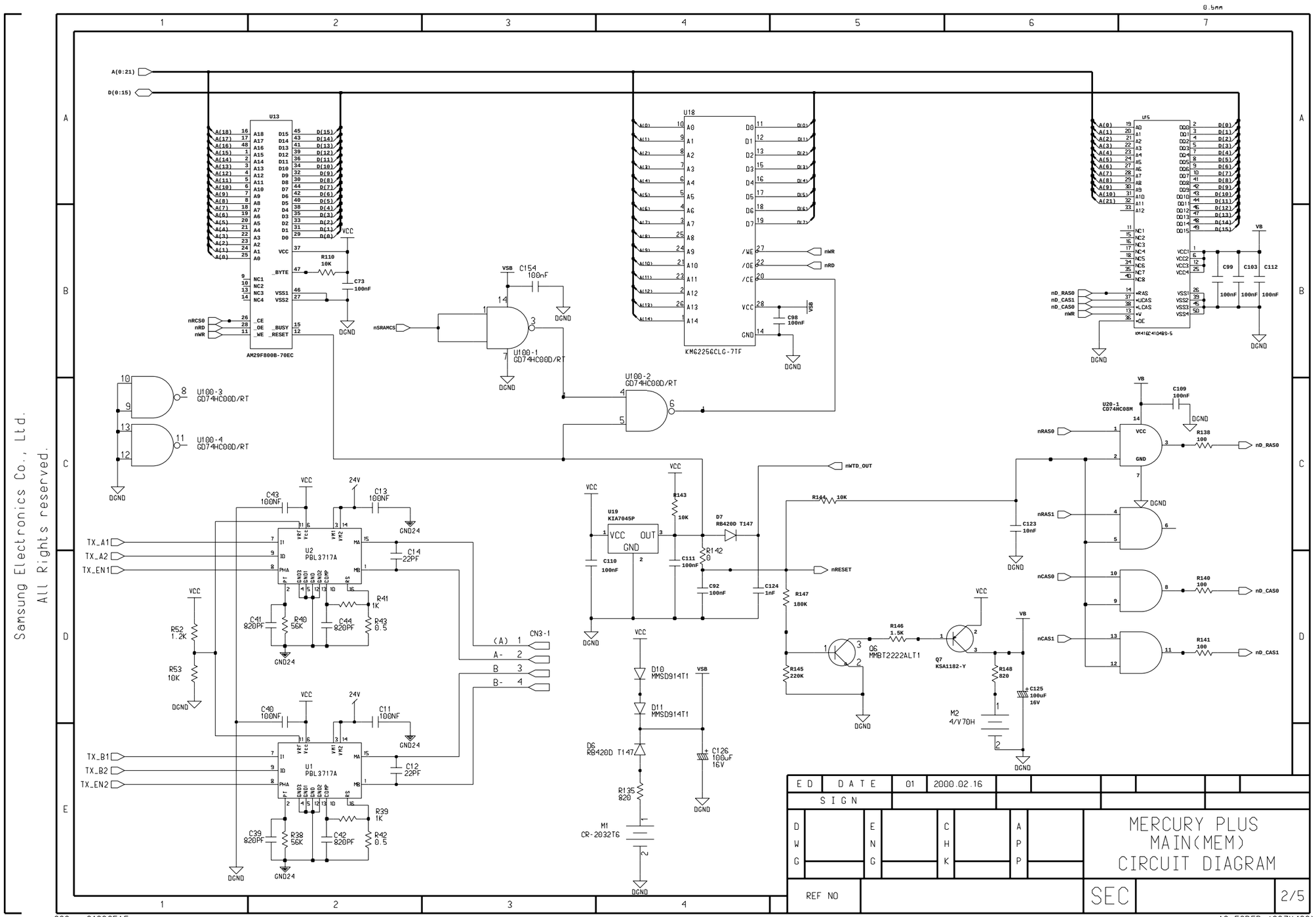


9. Schematic Diagrams

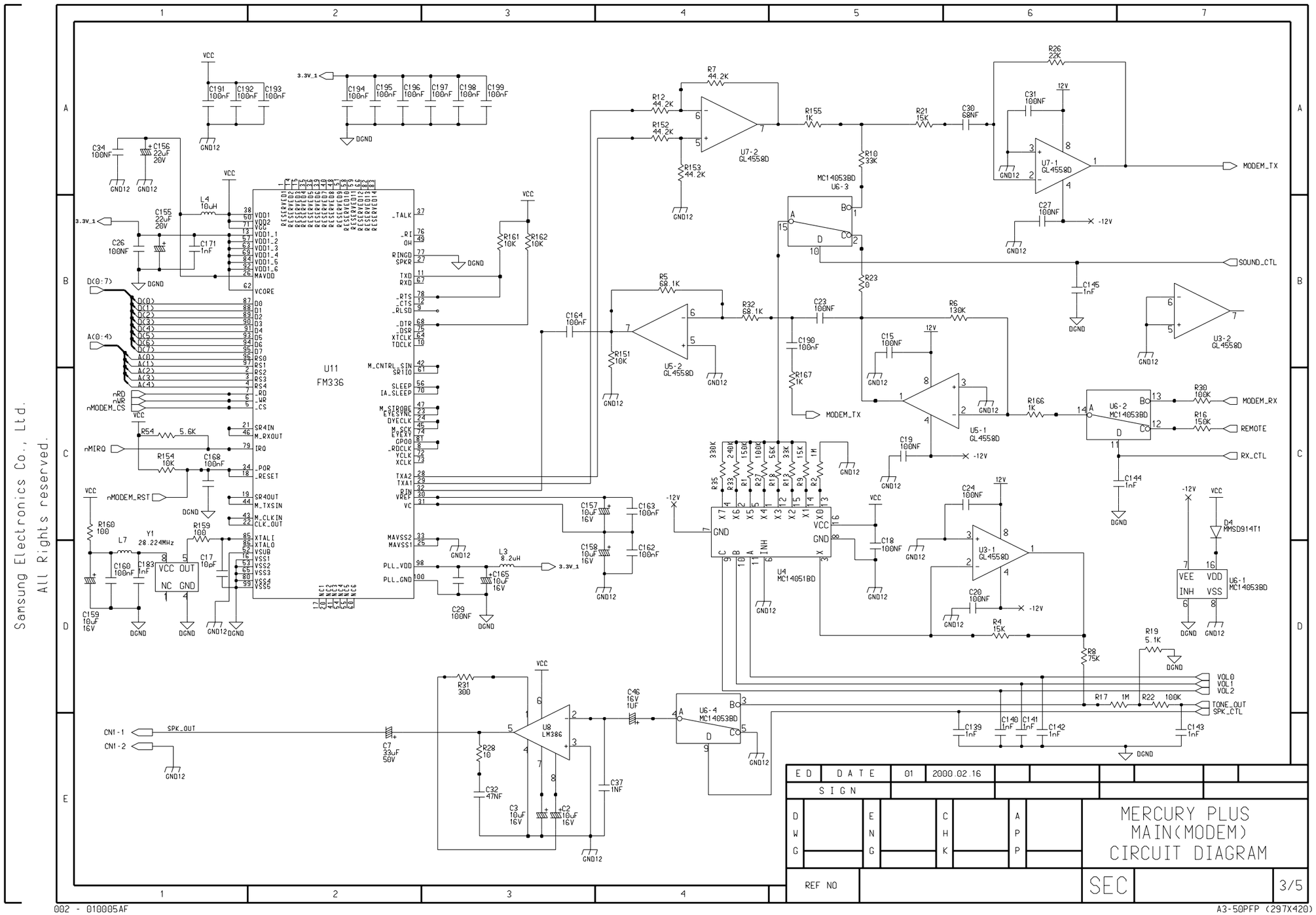
9-1 Main Circuit Diagram(1/5)



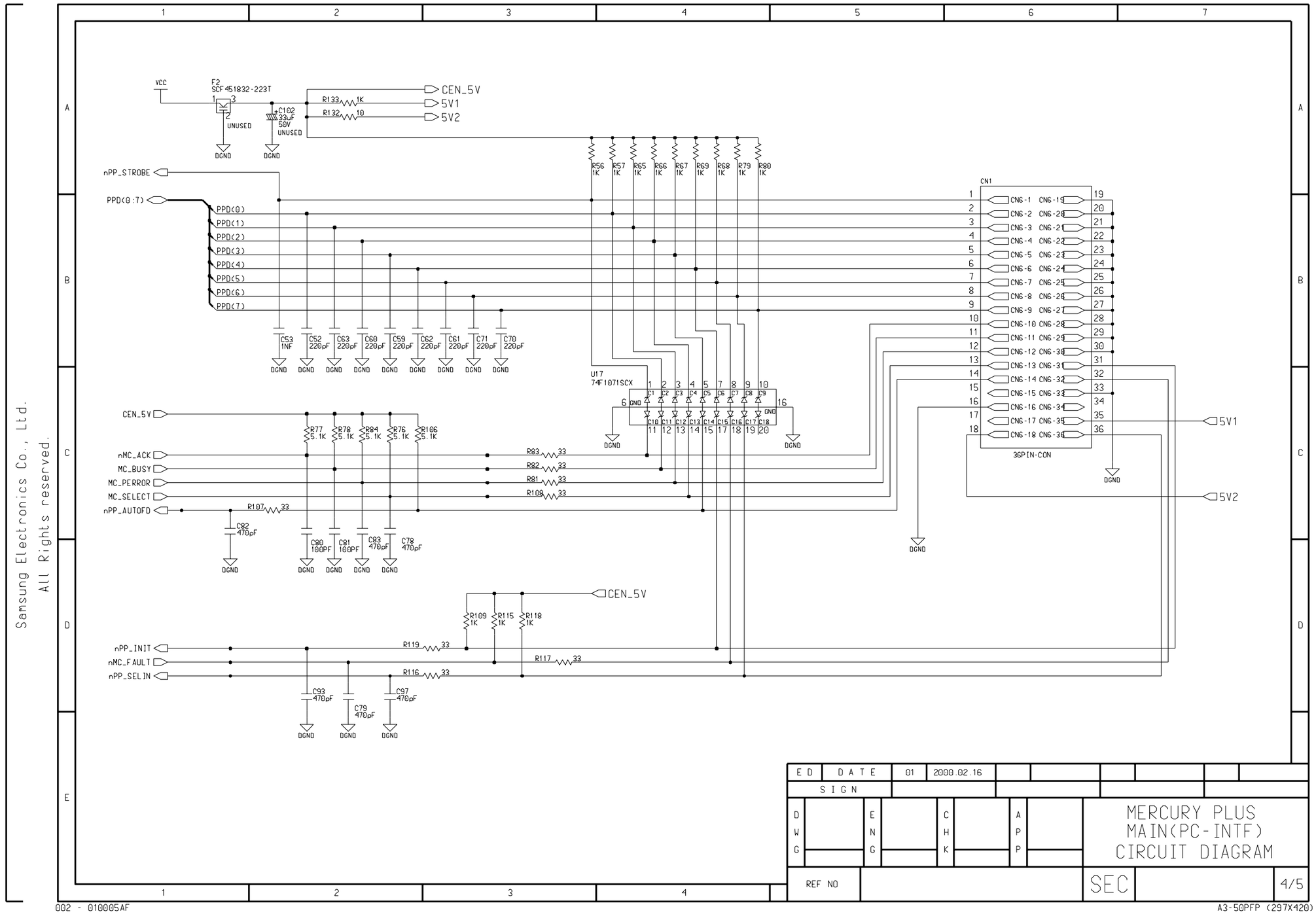
Main Circuit Diagram(2/5)



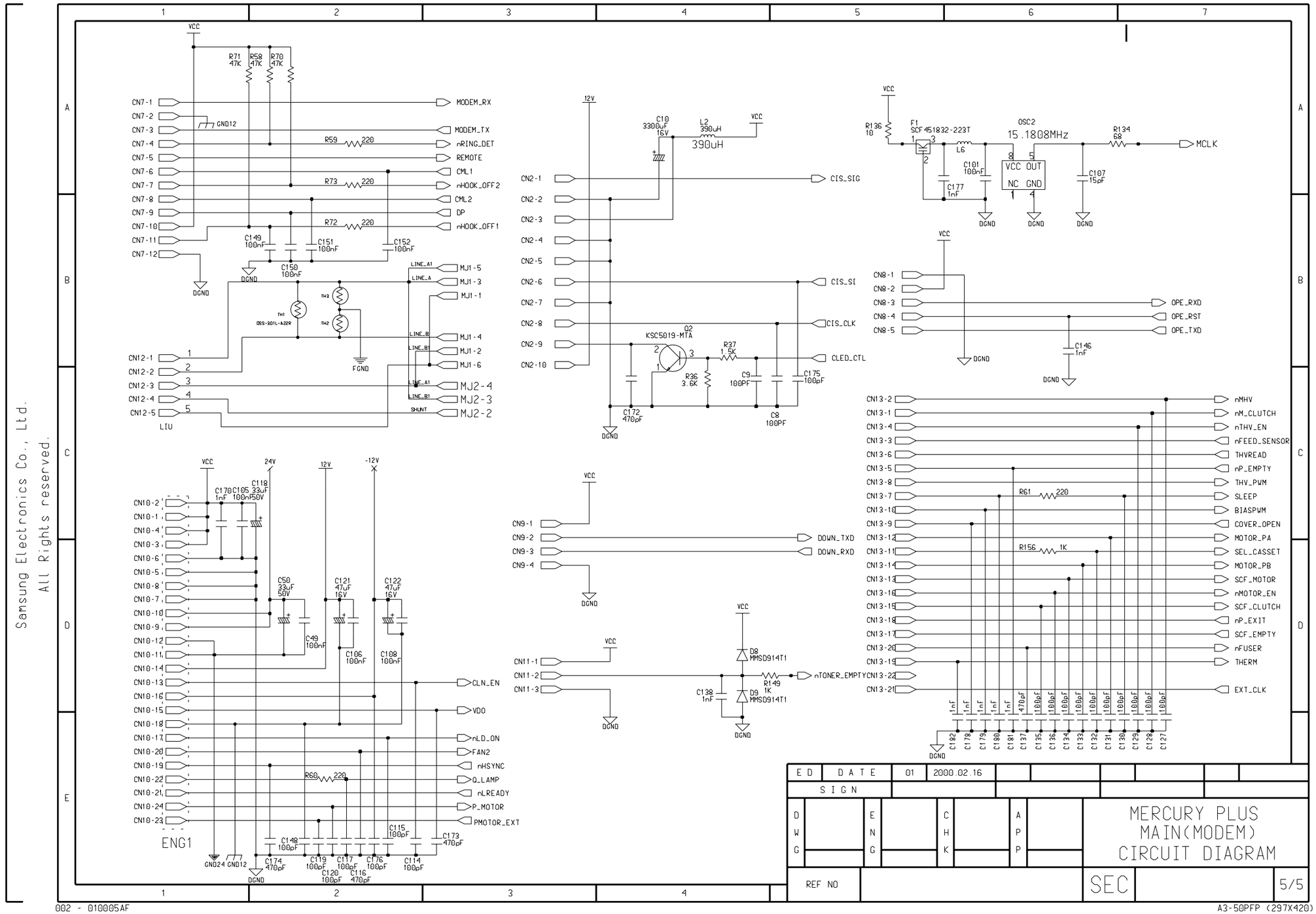
Main Circuit Diagram(3/5)



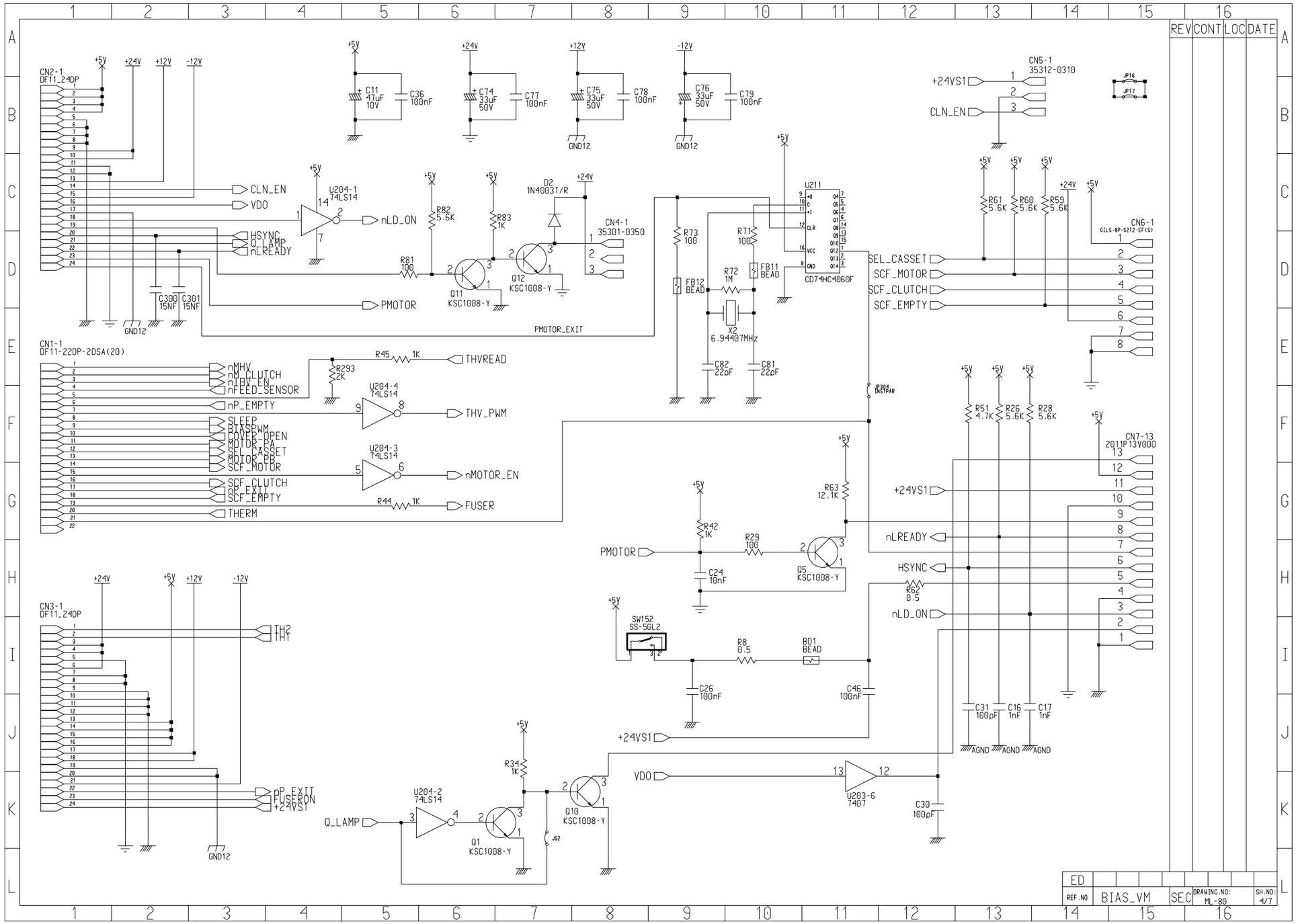
Main Circuit Diagram(4/5)



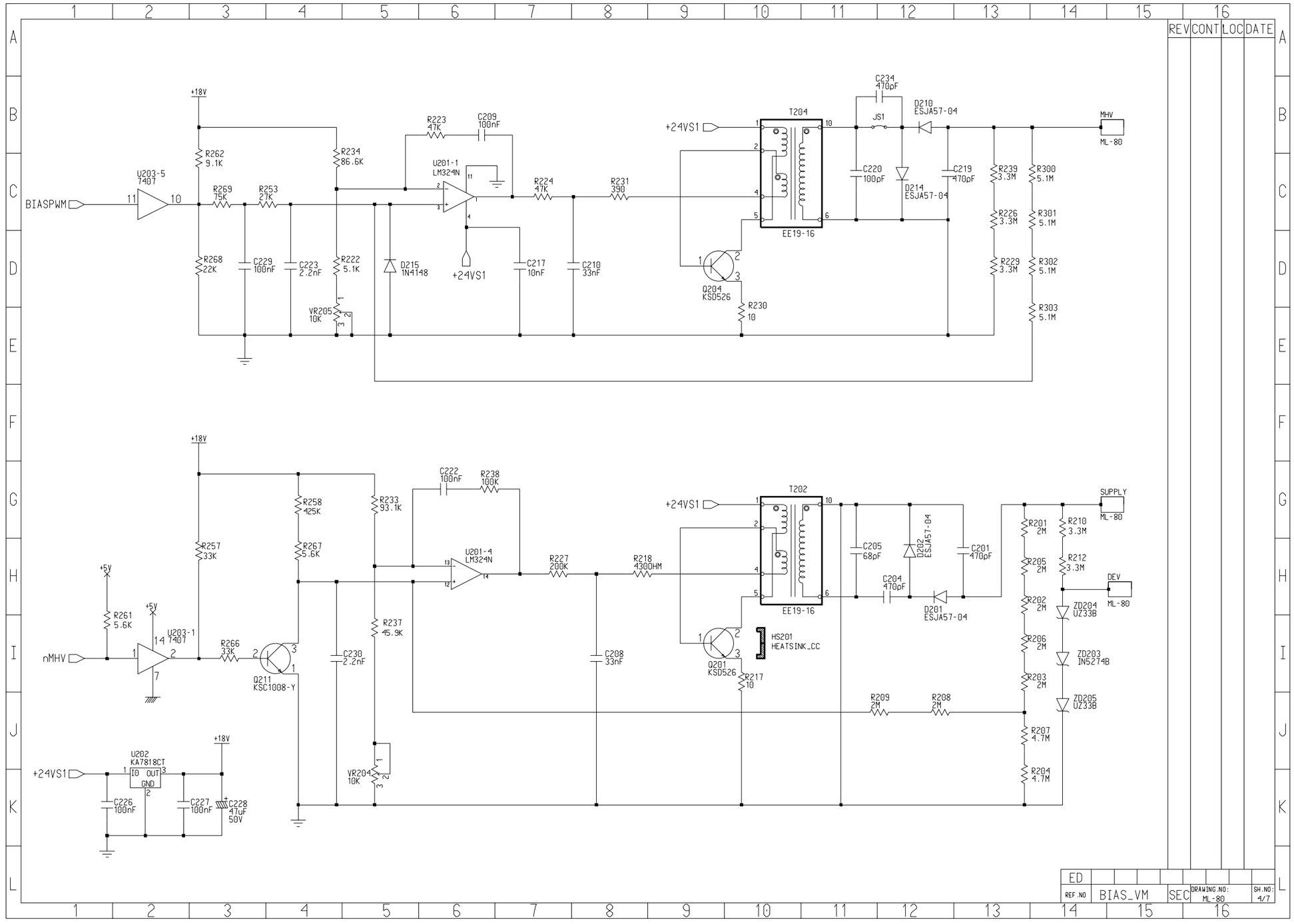
Main Circuit Diagram(5/5)



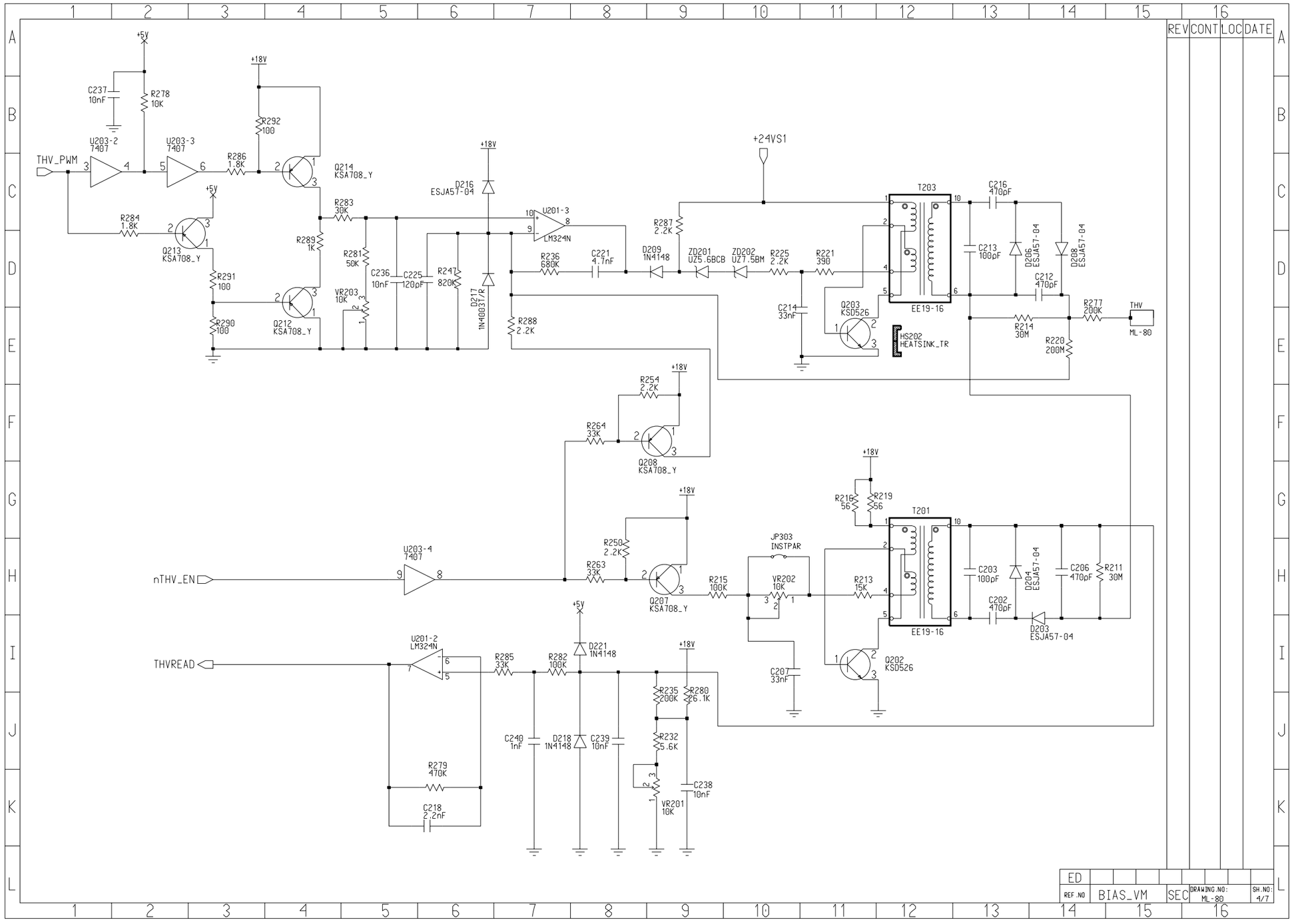
9-2 Engine Circuit Diagram(1/4)



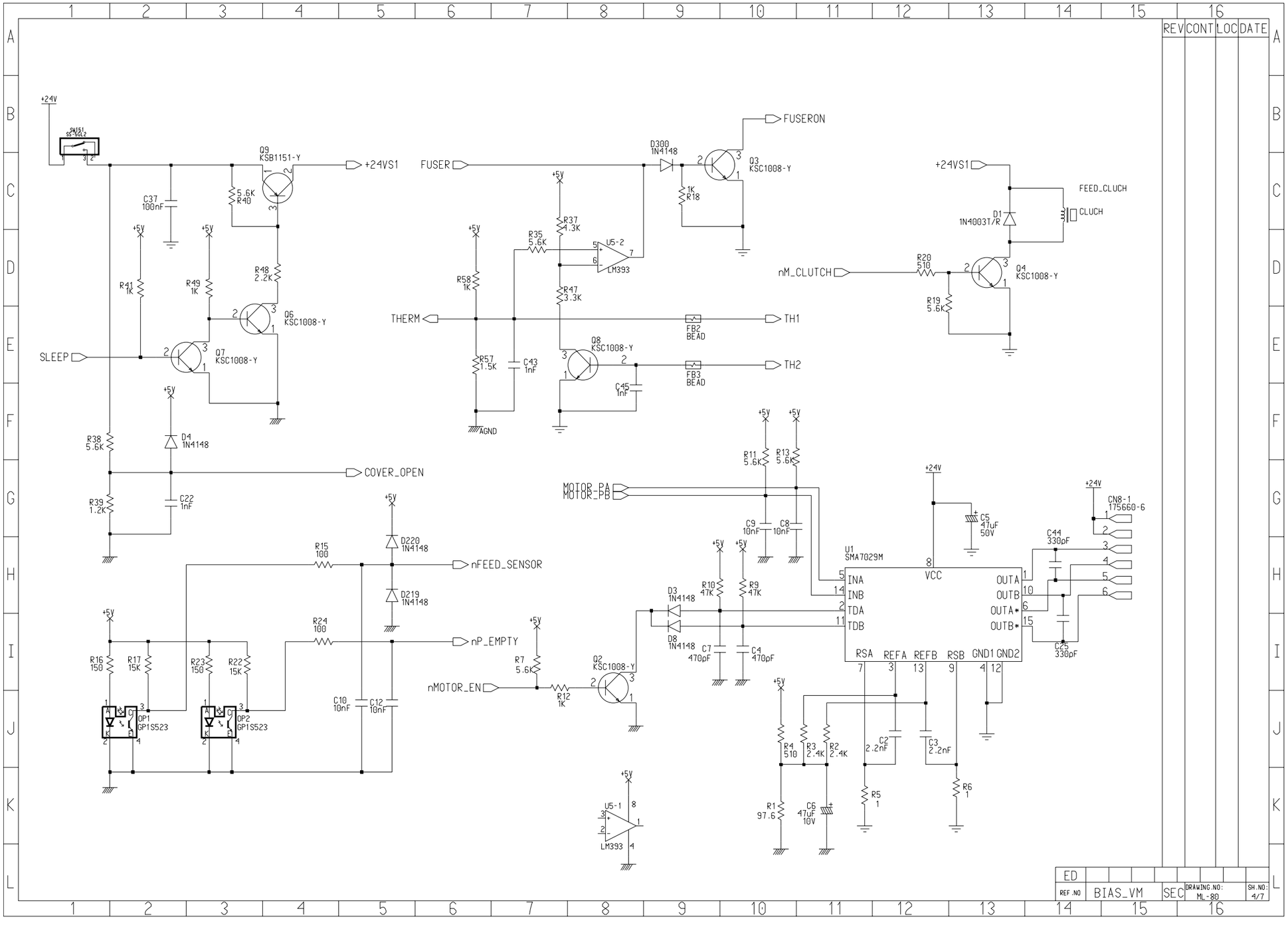
Engine Circuit Diagram(2/4)



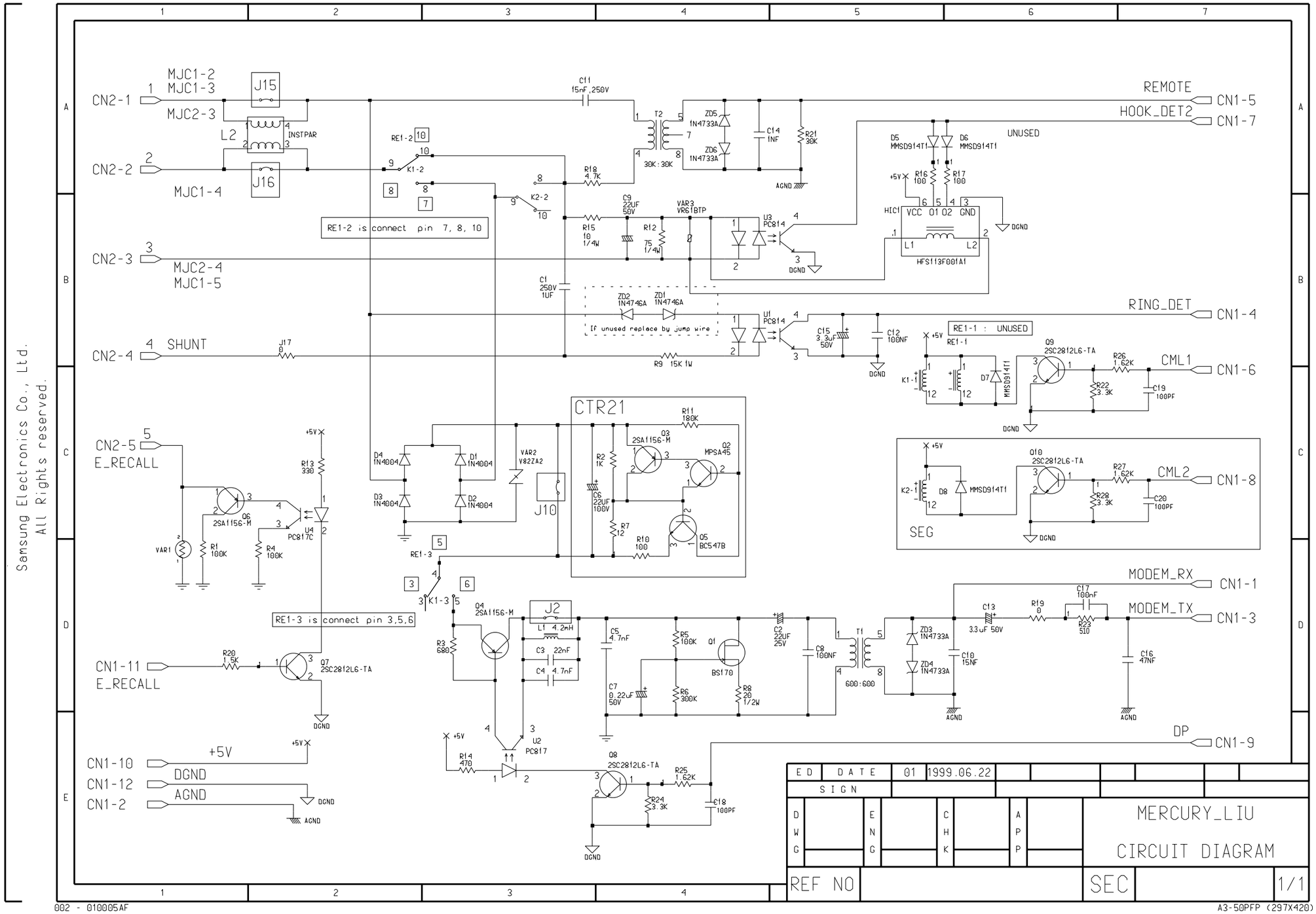
Engine Circuit Diagram(3/4)



Engine Circuit Diagram(4/4)



9-3 LIU Circuit Diagram



9-4 OPE Circuit Diagram